

Are Games Effective Learning Tools? A Review of Educational Games

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ABSTRACT

The literature around the use, efficacy and design of educational games and game-based learning approaches has been building up gradually and in phases, across different disciplines and in an ad hoc way. This has been problematic in a number of ways and resulted in fragmented literature and inconsistent referencing patterns between different sub-disciplines and countries. This is mainly because no distinct single-disciplinary perspective has emerged because of: the cross-disciplinary nature of educational games, a reliance on single-disciplinary contexts for studies, changing terminologies in different contexts and the use of multi-methodological approaches. Distinct perspectives from education science, game science, neuroscience and information science have deepened our understanding of play and games. This research has become more quantitative, rigorous and nuanced as a result of more studies focused upon therapeutic health applications of games, the serious games research movement and more efficacy and comparative studies that examine and quantify utility.

Keywords

Educational games, Serious games, Game science, Neuroscience and games

Introduction

Defining efficacy in educational contexts can be challenging due to the range of variables involved in different learning contexts. Additionally, there are disciplinary restraints that have traditionally meant that cross-disciplinary approaches to data collection and analysis have been broadly discouraged. However to understand education, and in particular questions around efficacy, necessarily we need to adopt more cross-disciplinary approaches. As an example, research emerging from education science is being supplemented by findings from computer science (e.g., interfaces and interactivity), neuroscience (e.g., brain function and activity) and information science (e.g., analytics and user-modelling). Notably these include findings from computer science which allow us to consider usability improvements and human-computer interactions (e.g., Barr et al., 2007), findings from neuroscience which provide a greater understanding of how games impact our brain plasticity (e.g., Bavelier et al., 2012; Kühn et al., 2011; Kühn et al., 2014) and approaches that use analytics in games as a replacement for assessment (e.g., Serrano-Laguna et al., 2012). Together, these findings help provide a broader understanding of how we can model learning experiences in digital, data-rich game environments, and tell us more about how we learn.

The review found that “game science” is emerging as a new term to replace “serious games” which has been a significant term for the game studies research community for the last ten years. Similar to “serious games”, the new term aims to link game studies to a greater scientific capability which has the potential to help us model and better understand: the learning behaviours of individuals and groups in game environments, learning design through the metaphor of game design and how games and play work to help people learn.

Establishing the efficacy of games and learning is a complicated endeavour. It needs to be kept within a wider context of understanding how we learn. So how game science fits into the wider disciplinary framework is a critical consideration. When viewed from this educational perspective, the notion of “game science” is part of the field we might call, “education science” and due to its digital nature it is often placed within the sub-discipline of Technology-Enhanced Learning (TEL). However, clearly there is important work to be found across a range of different areas including: human-computer interaction (e.g., Barr et al., 2007), health education and research (e.g., Papastergiou, 2009), neuroscience research (e.g., Kühn et al., 2011; Colzato et al., 2013; Lewis, 2013; Kühn et al., 2014), and across other literature such as business and management (e.g., Pasin & Giroux, 2011), school education (e.g., Hailey et al., 2016), advertising and marketing (e.g., Terlutter & Capella, 2013), military training and simulations (e.g., Hassain et al., 2012), environmental awareness-raising (Rebolledo-Mendez et al., 2009), therapy training (Horne-Moyer et al., 2014), teacher training (e.g., Kenny & McDaniel, 2011) and emergency-response training (e.g., Chen et al., 2008). One challenge with the literature so scattered is that not all researchers acknowledge the breadth of the area and range of applications, and therefore miss vital academic contributions by looking too narrowly at the literature-base. The situation is exacerbated by rifts between US and European research in serious games and between simulation and games literatures, and often you can see researchers will completely ignore critical papers from one “side” of the Atlantic or the other leading

to misunderstandings and incomplete starting points. Despite a number of special issues on games crossing several fields, the continuation of fragmentation of the field has again happened with the split between researchers in serious games and the new area of “gamification”. Gamification here is used to mean the application of elements of game-mechanics and/or game-design techniques. To attempt to bring the literatures closer together and to attempt to harmonize some of the terminology, this paper aims to map out the potential new ground for learning as evidenced in the sub-field of technology enhanced learning that defines game-based learning approaches.

To overcome these significant disciplinary challenges, this paper seeks to outline some of the major contributions of the field from different disciplines over time and synthesise these using an integrative approach to a broader education science perspective. The aim is to problematize the current scope of Education Studies and to reposition game science more critically within this educational context and perspective.

Methodology of literature review

This article has adopted a “grounded theory” approach used over a number of years to assess the main themes emerging from the fields that touch on educational games. The method used included a semi-systematic review process with a single-coder, wide literature searches across databases using keywords to collect high impact and cited articles and is supplemented with a journal hand-search. Keywords included educational games, serious games, learning games, web-based games and digital games. Once key texts were identified from the literature search, these were grouped into disciplinary perspectives. The emerging perspectives of education science, game science/studies, neuroscience and information science were distilled and key articles identified were included in this review.

The Review: A recent history of game science

Wave 1: What are games?

Some of the earliest work in the field of game science focused upon, changing definitions and nominations of educational games. For example, work that outlined classifications of games, typologies and ontologies was found in the early literature (e.g., Caillois & Barash, 1961; Sutton-Smith & Roberts, 1971). While the earlier work focused upon structuralist perspectives upon educational games as consistent with the trend for semiotics and structuralist analysis, the theme re-emerged later on in the more recent literature as a theme of consideration (e.g., Elverdam & Aarseth, 2007; Kamii & DeVries, 1980; Salen & Zimmerman, 2004). But the more consistent theme of poststructuralism and postmodernist perspectives necessarily focused more upon notions of play than structure also in line with constructivist and qualitative studies.

It is perhaps ironic that constructivist approaches to learning have become so associated with qualitative approaches as although the work does focus upon individual construction of meaning, the social constructivism of Vygotsky (1980) and others does propose learning in social groups as a central component of learning. But here a split between the American and other literatures can be noted as a de-emphasis of social learning and a greater focus upon Skinnerism and behaviourist approaches as consistent with the individualism and competition of the American ideal. The mode of bringing education theory together with an American individualist twist and its bringing into the paradigm of psychology jointly ensured that the more social focus emphasised by Russian theorist Vygotsky did not become the dominant discourse. The legacy of this can also be seen in the more general sparseness of social learning theory and was compounded by difficulties with researching and analysing group work, a trend that is partially being reversed in studies such as Star where collaboration rather than competition techniques are emerging (Star, 2015).

Wave 2: The serious games movement

Negative publicity around violence in games, in particular entertainment games have attracted popular attention. The robust evidence of games causing violence has overall been inconclusive (e.g., Elson & Ferguson, 2015) – but nonetheless the distinction between games for entertainment and games for non-entertainment was a major driver for why the “serious games movement” occurred in the early 2000s (Blumberg et al., 2013). However, once non-entertainment games could be demonstrably “taken seriously” for purposes such as military training and health education and therapy then the research field gained greater credibility.

Early “serious games” titles, such as America’s Army, have set the bar high in terms of the budget (\$33 million invested up until 2015 in all titles). Although small budgets next to entertainment games, (e.g., \$265 million for Grand Theft Auto 5), America’s Army is still considered one of the best exemplars of a serious game today. Having been first published in 2002, it has 13 million registered players who have played 260 million hours. Developed by the US Moves Institute to solve the recruitment problems of the US Army, unfortunately the game has proved to be more of an oddity than a trend. Few large budget serious games have been developed since 2002, and those that have been commissioned have not always enjoyed longevity of support once piloting phases have concluded, e.g., Code of Everand (Dunwell et al., 2014). During this period, although relatively disconnected from the mainstream games literature, the “serious games movement” did gain important contributions from game studies, such as a deeper understanding of the mechanisms of competition as a design component (Cagiltay et al., 2015), how to balance entertainment principles of fun with instructional design and the need to integrate teams of developers, writers and instructional designers.

Wave 3: Technology-enhanced learning perspectives: Out of the wilderness?

The next phase of focus upon educational games borrowed heavily from technology-enhanced learning approaches. There, a focus upon verification and validation of online learning and e-learning was leading to a wide range of comparative learning studies. Again studies were often lacking in robust methodologies, but were beginning to seek a more scientific basis for analysing the efficacy of learning techniques. This approach was driven-out of concerns about the quality of learning in online settings and studies were often more utility-focused. While the early studies had attempted to group games in typologies and genres, these studies focused upon comparisons with other e-learning formats and against traditional learning measures (e.g., Knight et al., 2010).

Out of this work, a movement to understand game design emerged, how could games be designed for different learning contexts? Could commercial off-the-shelf (COTS) games be used? These questions led to a range of studies of games in educational contexts and collections of case studies (e.g., Kim et al., 2009; Michael & Chen, 2005; Prensky, 2005; Shute et al., 2009). This phase of research was dominated by educational perspectives.

However, there were significant difficulties with uptake of games in educational contexts. As Simon Egenfeldt-Nielsen outlined in his thesis (Egenfeldt-Nielsen, 2005), games did not fit into the one-hour lessons, into the single disciplinary focus or into the single-teacher model of traditional learning. Games were disruptive, they demanded greater changes to the traditional delivery and infrastructure of education in schools, colleges and universities. Beyond traditional learning paradigms (see Table 1), game-based approaches required: cross-disciplinarity, longer class durations, mixed student groups, social learning and team-teaching models to come into place to really capitalise on the merits of the game and gameplay as learning approaches (de Freitas, 2014).

Four disciplinary perspectives from the literature

While it is difficult to be too prescriptive with the time periods, the research does seem to fall broadly into four broad disciplinary categories: education science including theory and practice studies and using elements of pedagogy and psychology, game science contextualised through technology enhanced learning, neuroscience that have focused upon brain-function and plasticity and information science-driven studies that focus more upon data analytics and behavioural modelling. The following sections outline these perspectives (see summary in Table 1):

Education science perspective on educational games

Major contributions to understanding learning formed early theoretical and developmental approaches to learning. Through understanding learning as cognitive and developmental sets of processes, theorists and educationalists, such as Jean Piaget, defined ages and stages of development associated with “normal patterns of development” (Piaget, 1971). But Piaget also understood the importance of play in learning (Piaget, 2013). Play has been a theme of the work around games necessarily, but has not been a well-understood aspect of learning. More recent play research by Jean Twenge and others shows how important and developmental play is to learning (e.g., Campbell & Twenge, 2015; Chudacoff, 2007; de Freitas, 2014; Gray, 2011; Twenge & Campbell, 2008).

In the light of the internet, broadened connectivity and mobile access to online educational content, there has been a de-emphasis on content and curriculum and a sharpened focus upon digital literacy and 21st century skills. Employability for the changing global employment market presents new needs for graduates and students (Harlow & Bowman, 2016). The move to a more utilitarian position, driven by education via web-based technologies and digitisation, has reworked how we deliver a university education and even challenged what the role of the university is (Sugden, 2013).

Table 1. Comparing the traditional, new learning and future learning approaches

Traditional paradigm of learning	New learning paradigm	Future learning
Curriculum-based pedagogy	Challenge and activity-led learning	Student developed pedagogy
Tutor-led learning delivery	Peer-focused interactions	Artificial Intelligence (AI) scaffolded learning
Classroom and lecture hall focus	Any-time, anywhere learning	Seamless lifelong learning
Summative assessments	Formative assessment / Peer assessment	No assessments / levelling, points and awards
Age and stage	Competency and personalised learning	Unique learning patterns
Text-focused	Multimedia usage	Adaptive learning
Traditional curriculum e.g., literacy and numeracy	New curriculum e.g., 21 st century skills	Hidden curriculum e.g. personalised skills and cognition training
Core curriculum	Work readiness	Blended work and learning

In the author's recent work, she articulates this disruption as a "new learning" paradigm. One that focuses upon problem-, challenge- and active pedagogy, peer learning and is competency-based and personalised (de Freitas, 2014). This differs from the traditional modes of curriculum-based and tutor-led approaches. With the work on games we can begin to see the rudiments of what the author calls a "future learning" paradigm, which advances to student-led approaches where adaptive learning is scaffolded through AI bots, assessment gives way to in-built levelling-up and the curriculum is hidden (See Table 1).

Game science perspective upon educational games

One of the main stated inhibitors to uptake of educational games and approaches was the lack of robust scientific and evidence-based research. The first randomised and pragmatic randomised controlled trials (RCTs/PCTs) started in the late 2000s. One of the early trials was undertaken by Knight et al. (2010), focusing upon a comparison between traditional and game-based approaches in emergency response training. Arnab et al. undertook an RCT which considered a serious game in a classroom setting. Miller and Robertson undertook an RCT on educational benefits of games consoles in classrooms (Miller & Robertson, 2011). While Star considered a randomised control trial for gamification in StarQuest to identify cooperative and competitive design elements in university students (Star, 2015). Arbogast et al. (2014) were examining the use of an educational game for road crossing in their recent study.

Unsurprisingly most recently RCTs involving games have focused upon health and medical conditions including patients with weight conditions (e.g., Ahola et al., 2013; Maddison et al., 2011; Siervo et al., 2013; Straker et al., 2011; Straker et al., 2013). Fung et al. (2012) considered the use of the Wii Fit for knee rehabilitation. Foss et al. (2013) used their randomised control trial to discover effective use of the i-Bit which is a novel binocular device which uses games and videos to improve patients with a lazy eye. Picherri et al. (2012) looked at the impact of a dance game upon gait. Another popular area for study was the impact of games upon the elderly. An interesting study by Nouchi et al. (2012) explored the positive impact on executive and processing speeds on the elderly of brain training games in their study. While Mayas et al. (2014) explored the plasticity of the brain in the elderly after non-violent game play. A study on Wii Fit games for patient's living with Parkinson's disease was undertaken recently by Pompeu et al. (2012); and one looking at improvements from gameplay with Diabetes sufferers (Kempf & Martin, 2013). Allam et al. (2015) in their RCT on gamification in an online intervention for Rheumatoid Arthritis Patients found that "physical activity increased over time for patients having access to social support sections plus gaming (unstandardised beta coefficient $\beta = 3.39$, $p = .02$). Patients were also more empowered and used services less as a result.

In addition to more quantitative studies such as RCTs/PCTs, meta reviews have offered important research contributions to overcoming the prevalence of different disciplinary perspectives. Often these reviews have been

cross-disciplinary in scope and dimension, single topic-focused, centred-upon comparative studies or in support of game design improvements. While there was a large group of studies done on violence in games (e.g., Anderson & Bushman, 2001; Anderson et al., 2010), these studies do not have much relationship with educational games which do not use violent metaphors or gameplay. One of the earliest meta-reviews was undertaken by Randel et al. (1992) considered literature 1963-1984, finding that of the 67 studies undertaken over the period, “38 show no difference between games and conventional instruction; 22 favour games; 5 favour games, but their controls are questionable; and 3 favour conventional instruction.”

Vogel et al. (2006) in their review included simulations and games, it found that “games and interactive simulations are more dominant for cognitive gain outcomes,” it also found that when students were empowered to control access to simulations and games there were significant advantages over when access was tutor-controlled, when no advantage was found. Ke (2009) undertook his meta-review in 2009, reviewing 89 studies finding that there was a need for more longitudinal studies, less fragmentation in the literature and more empirically-based studies. 65 out of 89 studies evaluated the effects of the game upon learning. From the empirically-based studies 34 out of the 69 found positive outcomes from using games, 17 had mixed results, 12 reported “no significant difference” with traditional instruction approaches – and one study found traditional methods more effective.

Wouters and Van Oostendorp (2013) undertook a meta-review on instructor-support in game environments, finding that “instructional support in game-based learning environments improved learning,” further that greater improvement was found in skills-based learning. Wouters et al. (2013) also found in another meta-analytic review of literature that “serious games were found to be more effective in terms of learning ($d = 0.29$, $p < .01$) and retention ($d = 0.36$, $p < .01$), but they were not more motivating ($d = 0.26$, $p > .05$) than conventional instruction methods.” This refuted much of the educational literature that had found games to have strong motivational gains (e.g., Garris et al., 2002). The study also found that “learners in serious games learned more, relative to those taught with conventional instruction methods, when the game was supplemented with other instruction methods, when multiple training sessions were involved, and when players worked in groups.” Sitzman (2011) found that “consistent with theory, post-training self-efficacy was 20% higher, declarative knowledge was 11% higher, procedural knowledge was 14% higher, and retention was 9% higher for trainees taught with simulation games, relative to a comparison group.” However she did find evidence of publication bias.

Connolly et al. (2012) undertook their meta-review, in contrast to Wouter et al. (2013), they found improvements in motivation. Their study reviewed 7,392 papers in total and found that “playing computer games is linked to a range of perceptual, cognitive, behavioural, affective and motivational impacts and outcomes.” Of the most recent reviews undertaken since 2014, Clark, Tanner-Smith and Killingsworth (2015) have found “results from media comparisons indicated that digital games significantly enhanced student learning relative to nongame conditions (Formula = 0.33, 95% confidence interval [0.19, 0.48], $k = 57$, $n = 209$).”

Neuroscience perspective on educational games and play

Our understanding about how we learn, through brain science and experiment, largely builds upon work of Edelman (1987) and Kandel and colleagues (2000). The specific scientific studies of neuroscientists Daphne Bavelier and Simone Kuhn have helped to shape the field and given great insights into the power of games to support advanced learning. Greater brain volume and plasticity with gameplay (Kühn et al., 2011; Kühn et al., 2014) and greater transferability of skills such as hand eye coordination, memory abilities and visual acuity (Green & Bavelier, 2003; Green & Bavelier, 2008; McDermott, Bavelier & Green, 2014) are amongst the more important findings revealed in recent studies. For example, Green and Bavelier (2008) undertook a review on brain plasticity and learning. They concluded, “possible characteristics of training regimens are proposed that may be responsible for augmented learning, including the manner in which task difficulty is progressed, the motivational state of the learner, and the type of feedback the training provides. When maximally implemented in rehabilitative paradigms, these characteristics may greatly increase the efficacy of training” (Green & Bavelier, 2008, p. 699).

Beyond these studies, it is hoped that we will begin to answer some questions, such as why are games effective learning tools? How can games be used to model social learning behaviours?

Information science perspective on educational games

One of the recent game-changers in the field of education research has been access to large datasets gleaned from learning management systems (LMS), student information systems (SIS), interactive environments and other computer-generated environments, such as digital games. In digital environments, such as games, all data can be collected and analysed relatively easily (Deterding et al., 2015; Loh et al., 2015). In these more data-rich environments the possibility to look at social learning behaviours has emerged (e.g., Gentile et al., 2009; Steiner et al., 2015). The study of social learning behaviour allows for individual and cohort mapping, comparative cohort studies and importantly longitudinal studies. The richness of learning data – or learning analytics – has led to more quantitative and longitudinal studies that involve large student populations (e.g., de Freitas et al., 2015) to supplement the preponderance of qualitative studies. This recent focus upon quantitative study of learning has real potential to inform how we design “new learning” and ensure that our students are suitably engaged and actively partnering in their learning. This is a powerful capability, but not without complex ethical issues in terms of privacy, de-identification of data, informed consent, data management and archiving (e.g., Pardo & Siemens, 2014; Slade & Prinsloo, 2013), some of which may be overcome in time by blockchains (Sharples & Domingue, 2016). Work is needed to ensure that feedback systems are beneficial to the attainment and success of the learner whilst enshrining ethical considerations and transparent approaches.

The notion of game analytics brings together large datasets for analysing human behaviour, supporting learning experiences and supporting individual and group performance and personalisation capabilities (e.g., El-Nasr, Drachen & Canossa, 2013; Drachen et al., 2013; Gibson & de Freitas, 2016).

Table 2. Contributions to game science from four disciplinary perspectives

Contribution from education science	Contribution from game studies/science	Contribution from neuroscience	Contribution from information science
<ul style="list-style-type: none"> • Importance of play to learning has been confirmed in play studies e.g., identification of importance of play (Piaget, 2013) • Longitudinal studies of examining play patterns (e.g., Twenge & Campbell, 2008) • How patterns of play can impact learning (e.g., Chudacoff, 2007; Gray, 2011) 	<ul style="list-style-type: none"> • Game Studies and Science literature includes insights such as increased motivation (e.g., Star, 2015; Plass et al., 2015; Attali & Arieli-Attali, 2015) • Pragmatic and randomised trials have confirmed that games can be more effective learning tools than traditional modes (advance on e-learning which found no significant difference with traditional modes) (e.g., Knight et al. 2010; Miller & Robertson, 2011; Straker et al., 2011) • Use of combined measures introduced including qualitative and quantitative measures (e.g., Kato et al., 2008) 	<ul style="list-style-type: none"> • Greater brain volume and plasticity with game play (Kuhn et al., 2011; 2014) • Greater transferability of skills such as hand eye coordination and visual acuity (Bavelier, 2003 (with Green) and 2014 papers) 	<ul style="list-style-type: none"> • Data modelling will allow us to map human behaviour more closely by using data interactions in games (e.g., Gibson & de Freitas, 2016) • Analytics allows for personalisation in games (e.g., El-Nasr, Drachen & Canossa, 2013; Drachen et al., 2013)

Discussion and conclusions

This review has aimed to reposition the emergent game science area of research within four inter-related disciplinary contexts of: education science, game studies, neuroscience and information science literatures.

Key challenges for integrating the research base are summarised as:

- The literature is so scattered across different disciplines that not all researchers acknowledge the breadth of the area and range of applications, and therefore miss vital academic contributions by looking too narrowly at the literature-base.
- Beyond traditional learning paradigms (see Figure 2), game-based approaches require: cross-disciplinarity, longer class durations, mixed student groups, social learning and team-teaching models to come into place to really capitalise on the merits of the game and gameplay as learning approaches, which are problematic for traditional formal education systems to incorporate.
- Work is needed to ensure that feedback systems used in educational games are beneficial to the attainment and success of the learner whilst enshrining ethical considerations and transparent approaches.
- Finding the balance between game playability and fun and solid learning design that aligns learning outcomes with assessments (in-game or as part of the blended experience) is a key challenge for effective educational game design.

The overall findings of the studies confirm that a more robust literature-base has grown considerably in recent years and has led to the notion of “game science.” Moreover, while the efficacy of educational games is hard to measure, findings from quantitative RCT and more data-driven longitudinal studies are giving us more robust findings to build and improve design of learning experiences, involving gamification and game-based elements and enhancing student success. What we have learnt from the research as well is the importance of using combined measures including qualitative and quantitative measures (e.g., Kato et al., 2008).

Game science is emerging as a robust and dynamic area of research crossing several disciplinary areas and redrawing the scope and research questions that intersect with learning efficacy and design. The future of this sub-field might include bringing together the substantive literatures of simulations, serious games, gamification and education technology. The two issues of cross-disciplinarity and methodology will be key for establishing the lines of the discipline, with the absorption of randomised controls, meta reviews and large dataset analyses combining with the qualitative methods established in education such as content analyses, case studies and ethnologies and with other approaches such as neurological studies and social network analyses to provide a level of granularity that supports better learning design and an improved student experience, through modelling social behaviours.

To the question: are games effective learning tools, the answer from the research is overwhelmingly positive. Going further, the weight of the research findings seems to point to significant improvements in game over traditional methods, and these are further enhanced by blended approaches that utilise game and face-to-face approaches. The work distilled from RCTs is particularly positive and indicates that educators are now challenged with the best ways to implement game-based approaches in their institutions. While it seems that games do enhance student motivation, are engaging and can be associated with behavioural change, more active design studies are needed to ensure that the best interests of the learner are met in different contexts. As educational games enter into a new wave of implementation, it will be interesting to see whether the lessons from across the different disciplines are absorbed into general practice.

It is clearly a challenge for educational institutions, policymakers and practitioners, but with the growing evidence-base advances in quality and overcoming challenges of privacy and design might be forecast. Despite resistance to the adoption of game-based approaches in schools, colleges and universities, like online learning, it will be a matter of time before the cost benefits drive uptake widely and the full implication of the research are fully understood. As the traditional learning paradigm gives way to the new learning and then on to the future learning approaches, game-based learning will become more embedded into practices, be personalised and hide the curriculum in more seamless ways. But researchers, policymakers, managers and practitioners in the field will need to work hard to ensure: distillation of key benefits, join-up of the literatures, harmonising different disciplinary perspectives, methodological challenges and creation of a shared terminology between these four disciplinary perspectives.

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Article about Play Therapy

<https://www.therapistaid.com/therapy-article/overview-of-play-therapy>

- “The formation of a strong, secure attachment between child and therapist is the number one predictor of success in therapy. The play therapist consistently maintains interest in the child—in the child's interests, hobbies, fears, joys, idiosyncrasies, and so on.”
- “Therapy tools allow them to effectively explore and communicate their feelings”

Article about Therapy Games

https://go.gale.com/ps/retrieve.do?tabID=T002&resultListType=RESULT_LIST&searchResultsType=SingleTab&searchType=BasicSearchForm¤tPosition=1&docId=GALE%7CA147117967&docType=Interview&sort=Relevance&contentSegment=ZEDU-MOD1&prodId=PROF&contentSet=GALE%7CA147117967&searchId=R1&userGroupName=j043905007&inPS=true

- “prosaic most of the concerns are”
- “One card reads, “Larry's friend asked for help cheating on a test. How can Larry say 'no' without upsetting his friend too much?” Maybe the bigger question Larry ought to be asking himself is, Does he want this kid as a friend? Instead, the focus is on the friend's feelings, which is a sort of standard therapeutic conceit.”
- “Are tools like this game in some sense displacing other modes of teaching kids about ethics? What is the context in which we decide what is the right course of action?”

Article about Video Game for Elementary Kids

https://go.gale.com/ps/retrieve.do?tabID=T002&resultListType=RESULT_LIST&searchResultsType=SingleTab&searchType=BasicSearchForm¤tPosition=17&docId=GALE%7CA429883252&docType=Article&sort=Relevance&contentSegment=ZEDU-MOD1&prodId=PROF&contentSet=GALE%7CA429883252&searchId=R1&userGroupName=j043905007&inPS=true

Benefits and How it Works

1. Imaginary situations when children assign new meanings to the objects and people in a pretend situation. When children pretend, they focus on an object's abstract properties rather than its concrete attributes. They invent new uses for familiar toys and props when the play scenario calls for it. In doing so, they become aware of different symbolic systems that will serve them later when they start mastering letters and numbers.
2. Multiple roles which are not stereotypical or limited; the play easily includes supporting characters. For example, playing “hospital” does not mean that the only roles are those of doctors. Children can also pretend to be an ambulance driver or a phone dispatcher. When children assume different roles in play scenarios, they learn about real social interactions that they might not have experienced (not just following commands but also issuing them; not only asking for help but also being the one that helps). In addition, they

learn about their own actions and emotions by using them "on demand." Understanding emotions and developing emotional self-control are crucial for children's social and emotional development.

3. Clearly defined rules. As children follow the rules in play, they learn to delay immediate fulfillment of their desires. Thus, mature play helps young children develop self-regulation. To stay in the play, the child must follow the rules.
4. Flexible themes which are flexible enough to incorporate new roles and ideas previously associated with other themes. When children play at a more mature level, they negotiate their plans. By combining different themes, children learn to plan and solve problems.
5. Extensive use of language by children to plan their play scenario, to negotiate and act out their roles, to explain their "pretend" behaviors to other participants, and to regulate compliance with the rules. As the repertoire of roles grows, so do children's vocabulary, mastery of grammar and practical uses of language, and metalinguistic awareness.
6. Not limited length of play which can last for many days as children pick up the theme where they left off and continue playing. Creating, reviewing, and revising the plans are essential parts of the play. Staying with the same play theme for a long time allows children to elaborate on the imaginary situation, integrate new roles, and discover new uses for play props.

Benefits of Games

- Effective play scaffolding gives good opportunity to develop motives from the forms of affective immediate desires to a hierarchical system of children's goals. Evidently it is more productive if the software gives the possibility to children to fix their planning results in graphic form (written or painted).
- As a play role is the basement of such a decentering it is demonstrated in the appearance of a role name and a role speech. This ability to take the role provides the possibility of new relationship form such as "I am" - "I am in role" where children can understand the difference between their actual position and the position of the objects, whose role they are playing.
- Computer games can advance the development of mental representations. Such a development takes place as the result of a child separating the meaning of objects from their physical form. In ordinary games it happens from using replicas to substitute for real objects, through using new objects which can perform the same function as the prototype, to such a substitution which takes place in the child's speech with no objects present.

Types of Games

1. Developmental Games: These programs can be described as "open" type ones, where the goal is not defined clearly and games become tools of children's creativity and self-expression. First of all these games are good for the development of common cognitive abilities such as analysis, synthesis, critical thinking and others which are the basement of many kinds of human activities. Secondly, they can be a very strong tool for

developing children's imagination and emotions. Such developmental games have a big potential for using them in the education process of kindergartens being basement of lessons or other children's extended activities (Perlmutter, 1985, Haugland, 1992).

2. **Learning Games:** These game programs are made especially for didactic goals and can be described as "closed" ones. Children are supposed to solve any learning task in a form of play. These are games for early mathematical learning, learning letters and sounds of language, writing through reading and reading through writing, for learning some ecological knowledge etc.
3. **Games-Experimentations:** Goals and rules here are not defined very clearly and are hidden in the game's plot or in the management tools. To succeed a child needs to discover the goal and the mode of action by searching and solving problematic situations.
4. **Games for Entertainment:** Such games do not have any goals by the first sight; they give opportunities to have some fun and to see the result of the game as a "micro cartoon".
5. **Computer Games for Diagnostic:** In spite of the fact that all developmental and learning games could be defined as diagnostic games, there are special computer programs which can be identified as psycho diagnostic and validated methods. Those programs fix and memorize given parameters, then process and memorize the results. Further, the results could be shown on the display or be printed for interpretation by a psychologist. Moreover variants of interpretation can be programmed and given by computer automatically. Results of diagnostic can be given as recommendations to kindergarten staff or parents. Also these types of programs can be computer methods of express diagnosis of different systems of a child's organism; they provide opportunities to define pathologies very fast. Empirical analysis shows that such programs can be used in kindergartens for: diagnostic children's general cognitive skills; evaluation of development psychological functions: memory, attention etc.; diagnostic of creative abilities of children; identifying readiness of children to kindergarten life; identifying readiness of children to school life; express diagnostic of child's fatigue during computer usage.
6. **Computer Games for Therapy and Correction:** Kindergarten specialists use such games to correct or cure some physical or mental diseases. In inclusive kindergartens there are very useful game-programs for blind and deaf children, autistic children and others.

How to Build Board Game

<https://www.instructables.com/id/Build-your-Own-Board-Game/>

- Role or no role?
- Concept: Search for something, Defend yourself, *Seek something*, Decode something, create something, analytical/pattern solve based like checkers, or simple still entertaining game of life style, etc Lose and gain neurotransmitters. Talk to process. CBT and narrative approach. Role
- Opponent relationship: Capture, step on, work together maybe?

https://www.parentbooks.ca/Therapeutic_Games.html (look through descriptions for ideas)
<https://societyforpsychotherapy.org/using-popular-games-therapeutically/> (interesting points)
<https://www.pinterest.com/pin/320459329706767004/?lp=true>
<https://www.therapistaid.com/therapy-games>

By Curtis Boehmer

There are times when a wonderful school, a dedicated teacher, a hard-working student, and a supportive environment just aren't enough. Sometimes kids don't seem to get it. They can't keep track of their work, struggle to take notes, or read too slowly to keep up. And even well-performing students sometimes puzzle their teachers with their poor performance on a test when they seemed to have a good grasp of the material. Putting a finger on students' weaknesses and strengths and helping them overcome their barriers can be extremely difficult.

My experience helping kids achieve their best started more than 30 years ago. In that time, I've provided and overseen interventions for thousands of students. Over the last two years, I've seen technology deliver on the promise of helping kids achieve far more than we thought they could—no matter what their cognitive abilities are.

Transforming Students

I'm a self-confessed geek, but even I've been surprised by the transformation I've seen in students who were supported by new technology that combines what we've learned about the brain with the medium many of our students use day in and day out: video games.

Brain Training with Video Games

I've had the opportunity to participate in a pilot program that was being rolled out to every student in the district, and I want to share the results.

It all started over the winter holiday of the 2007–08 school year. I was searching the Internet to see if there was any new brain research that would help my language-delayed students. What I came across was a program called BrainWare Safari, which is designed to develop students' underlying mental processing skills. Three things intrigued me:

- 1 The program wasn't about subject matter; it was about attention skills, visualization, sequential processing, the ability to see patterns and to understand relationships, and other basic mental processes. These were the skills many of my students struggled with.

- 2 The program was supported by research that had

produced an average of four years of cognitive growth in just three months ("A Study of the Effectiveness of Cognitive Skill Therapy Delivered in a Video-Game Format," by D. Helms and Sara Sawtelle, *Optometry & Vision Development*, 2007, vol. 381, pages 19–26).

- 3 The program used technology in a way that was engaging for students. It was designed as a video game.

Overlearning with Video Games

Video games have been praised and panned as a medium for education for years, but it's now becoming accepted that video games help students think, solve problems, and overcome difficulties. Research has shown that video games provide practice and overlearning that result in automaticity of skills. Why, then, couldn't video-game technology help students develop some of the underlying skills they are missing?

I got permission from my superintendent at Harbor Beach School in Michigan to do a pilot project with 10 grade 2–8 students. To be consistent with the usage pattern in the original research, I set up a 12-week after-school program that ran for 45 minutes a day, four days a week. The district's psychologist and I pretested the students with several subtests of

Multidisciplinary

the Woodcock-Johnson III Cognitive Battery. We used the same tests at the conclusion of the program. In this pilot study, we did not have a control group because the initial published research on the program had included a control group and had shown that the observed changes were due to the intervention, not to test recognition. Thus, we were comfortable that any results we would see would be attributable to the program we were putting in place. What we wanted to show was whether intensive cognitive-skill development could produce the same kinds of dramatic improvements as the research conducted by the company that had developed the program. After all, we tell our students not to believe everything they read on the Internet, so we shouldn't either.

Teaching Students to Think

The teachers were skeptical. They wanted to know what kind of math, reading, and science the kids were going to be doing in this after-school program. It took some doing to explain that we weren't working—at least directly—on literacy or math. Instead, we were testing a tool to help kids think better. We explained that we were developing underlying cognitive skills—the building blocks of thinking—and we invited the teachers to visit our after-school sessions. It would be several weeks before any of them took us up on it.

In the meantime, I checked in on a weekly basis with each of the teachers who had a student in the cognitive-skills development program. “How’s

school coming?” I’d ask. “Nothing different,” they’d answer, at least for the first six or seven weeks. Then, one teacher who had said “nothing different” to me one day came back the next day. She told me she’d checked her student’s daily work. The changes in this student’s performance had been subtle and gradual, so it hadn’t jumped out at her, but upon review, her grade book told her that the student’s performance was rising. And that improvement was starting to accelerate.

That teacher visited our after-school program because she wanted to be able to do what we were doing in her own classroom. As she watched the students using the video-game-based program, she immediately realized that she couldn’t do the same thing in the classroom. Nor should she have to! Technology provides the means to develop underlying mental processing skills, so that students come to the classroom with the ability to take in and integrate the information and insight the teacher provides.

Learning to Take Notes

One of the students in the pilot program came to me one day and said he’d gotten an A on a test for the first time in his life. When I asked him what he had done differently, his initial reaction was, “Nothing.” But it turned out that, for the first time, he had taken notes and reviewed them. Now, taking notes may not be remarkable—it’s something all teachers want their students to do—but this student had never been able to take notes before. It used to be that whenever he

tried to write down what the teacher said, he’d get lost. Six weeks into our intensive cognitive development program, something different was happening with this student.

Getting Results

The anecdotes from the teachers and students were borne out when we analyzed the results of the posttest. On average, these 10 students improved their intellectual ability by more than three years in those 10 weeks. Equally as impressive, every student experienced cognitive growth ranging from slightly more than a year to more than seven years.

The next year, Harbor Beach implemented the program with junior high and high school students, again with positive results. We were validating what the brain researchers had been telling us: Our brains have the capacity to change with the right kind of training, and each brain is unique, benefiting in different ways depending on individual strengths and weaknesses.

One student stands out—a high-performing senior who took his ACTs and scored in the low 30s except for a 22 on his reading score. He retook them and received a 21 on the reading section. The superintendent called me in to discuss how the district had failed to enable this student to achieve to his potential (the underlying presumption being that it is the district’s responsibility to help every student succeed to his or her potential). He asked if I thought the cognitive development program would help this student. I told him I didn’t know, but we had the

student work through the program, using the same pre- and posttests.

At first, I was disappointed because I didn't see any statistical change on the Woodcock-Johnson tests, but the student retook his ACTs and scored a 30 in reading—a 9-point gain. The only intervention had been the intensive cognitive development program. As we discussed the situation, we concluded that this was a student with strong cognitive skills, but those skills were compartmentalized. The cognitive development program helped him integrate those skills at an efficient and automatic level, which enabled him to perform on the ACT.

Although certain students stand out, the pattern has been consistent. Every student who has been through the cognitive-skills development program has improved his or her performance. Struggling students, gifted students, and students in between have improved their ability to think and to learn.

Choosing a Program

Harbor Beach's experience has convinced us that several success factors are key in choosing a neuroscience-based skills development program.

The program must be engaging and motivating. Brains that aren't engaged won't learn. Brain training is hard work, but delivering it in a video-game format provides the extrinsic and intrinsic rewards that keep students coming back for more.

The program must be comprehensive and integrated. Mental processing skills

are interconnected and have to work together. Drilling individual skills is of little use, because that isn't how they're used when we engage in reading, thinking, and problem solving.

The program must let students succeed. The feeling of success that comes from overcoming something that is challenging will help students not just when they tackle a difficult assignment in school, but throughout their lives.

The program should develop true automaticity. Neuroscientists have identified at least two main categories of memory: declarative and procedural. Procedural skill involves mental processes that operate at an automatic level.

The program must be research based. It should be implemented in a way that allows the school or district to understand the impact it is having on students and the way it transfers to all learning.

The school and the teachers must recognize that developing underlying cognitive skills is not something teachers can do on their own without the help of technology. The process of cognitive-skill development requires intensity, repetition, and almost perfect individualization. A successful program will use technology not just as a delivery mechanism for something a teacher could otherwise do, but also to transform students' ability to benefit from what teachers can do best.

Considering the Drawbacks

The only drawbacks we have found lie with the motivation of the students. In the beginning, they are

eager and enthusiastic, and the games are relatively easy. As the tasks become more difficult, some students see their success slow down, and their motivation falls off. We call this point in the program "hitting the wall." This is not a program where you can just sit kids down in front of the computer and let them have at it. They need to have a teacher monitor them and give them suggestions about how to remember something or how to complete the task. Sometimes, they just need encouraging words. In all honesty, this is the only drawback we've found.

It sounds too good to be true, but it really works. We have been amazed at the improvement in our students at all levels. If you believe that our job as educators is to help students become the best and strongest thinkers and problem solvers they can be, to make learning fun and engaging, and to give students the skills they need to live in a world with challenges we can't yet imagine, then the benefit of a cognitive-skills development program is immeasurable. Using video games to build skills can address the unique needs of students and enable them to come to the experience of learning with the foundation they need for success in school and beyond.



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Child group psychotherapy in the school at the threshold of a new millennium

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Abstract:

This article reviews existing studies in child group interventions, including educational, counseling, and psychotherapy groups. It highlights both outcome and process research, regarding the different types of groups, and offers implications for practitioners as well as for future research.

More and more children and adolescents today are exhibiting adjustment problems in the school. Some of these problems are part of their normal developmental tasks, whereas others are a result of stressful events in their lives. For instance, the transition from one neighborhood to another, or from one school to another, may be a normal transition for some yet might present a great emotional and social challenge to others. Moreover, many children experience test anxiety, school failure, social isolation or rejection, or are involved in bullying. Unfortunately, a growing number of children and adolescents also experience unusual stressful life events that have a detrimental impact on their emotional well-being, social life, and school performance. Family break-up, parental neglect and abuse, death, war, and world disasters are all stressors that affect how children function (American Psychiatric Association, 2000). Such events are reflected in deviant behavior of an internalized or externalized nature: withdrawal, depression, suicidal behavior, eating disorders, aggression, violence, and delinquency.

Whether such problems are merely developmental or anchored in mildly or severely stressful life events, child group psychotherapy may be the treatment of choice. Of all psychotherapy modalities, therapy in a group effectively and efficiently furthers children's capacities for social interaction and intimacy through interaction that is familiar and nonthreatening to them (Kymissis, 1996; Rose, 1998; Schaefer, 1999). Such intervention, which has proven to be as effective as individual therapy (Hoag & Burlingame, 1997; Shechtman & Ben-David, 1999), is cost-effective. With a ratio of 1 counselor to 400 students (DeLucia-Waack, 2000), economic considerations clearly call for greater prominence of child group psychotherapy. Indeed, the high level of need has contributed to an increase of group work in the schools, and over 80% of children's psychotherapy groups are performed in that setting (Hoag & Burlingame, 1997; Kulic, Horne, & Dagley, 2000).

Rapid development of children's groups in the school does not always produce the best results. Treatments should be tested to establish their accountability, and existing group processes should be explored to inform practitioners about the best practices. In this respect, research on child group psychotherapy has fallen short. In a recent journal reviewing 100 years of group research, the editor (i.e., Forsyth, 2000) concluded that "the scientific study of groups is only reaching its adolescence" (p. 4). In the case of child group psychotherapy, it would probably be correct to suggest that research is still in its infancy, based mostly on the least rigorous methodologies, such as case studies (Barlow, Burlingame, & Fuhrman, 2000). Too much of what is known about group work with children is based on adult groups; however, it is clear that the dynamics in children's groups--as well as children's needs--are very different from those of adults (DeLucia-Waack, 2000). In light of this lacuna, this article presents and discusses the types of groups practiced in schools and their outcomes, highlights the very few process studies

available, and draws some practical implications that might eventually improve our clinical work.

TYPES OF GROUPS PRACTICED WITH CHILDREN

The typology of group intervention with children includes three types of groups: Guidance/Educational, Counseling/Interpersonal Problem-Solving, and Psychotherapy/Personality Reconstruction (Gazda, 1989; Gladding, 1995). Of the groups practiced with children in the school, 37% entail guidance groups, 55% are counseling groups, and most of the rest are a combination of the two (Kulic et al., 2000). Most educational and counseling groups are time-limited (about 3 months) and take a cognitive-behavioral approach (Barlow et al., 2000; Hoag & Burlingame, 1997; Kulic et al., 2000).

Notwithstanding the attempt to classify the groups, the definition used for group therapy with children is quite loose. Group psychotherapy is defined as "any intervention designed to alleviate psychological distress, reduce maladaptive behavior, or enhance adaptive behavior through counseling, structured or unstructured interaction, a training program, or a predetermined treatment plan" (Weisz, Weiss, Alicke, & Klotz, as cited in Dagley, Gazda, Eppinger, & Stewart, 1994, p. 340). Such a comprehensive definition encompasses all variations of group interventions.

There are advantages to such a broad definition. It suggests that therapy no longer happens only in inpatient or clinical settings but rather covers a wide range of applicants, settings, and problems (Barlow et al., 2000). It also reflects the flexible boundaries between the types of group intervention, allowing any treatment process that can help children (Gazda, 1989; Gladding, 1995). On the other hand, it adds to the lack of clarity regarding the type of intervention used. Many authors do not even specify the type of group or the intervention (Kulic et al., 2000).

Why is it important to define the type of intervention? First, the definition dictates the goals, the setting, the qualifications of the leader, and so on (Gazda, 1989; Gladding, 1995). Second, it has significance for research: In replication studies, it is important to understand exactly what was originally done. Indeed, American Psychological Association (APA) principles for the evaluation of research in therapy (Division 17 Special Task Group, 1999) require that the type of intervention be clearly specified in respect to its theory, specific program, and population. Finally, and perhaps most important, there must be a match between the goals of intervention and the expected operational outcomes. One group intervention may contribute more than another to certain expected outcomes, as illustrated in the following research review.

OUTCOME RESEARCH IN CHILD GROUP PSYCHOTHERAPY

Recent internal and external pressures for accountability and effectiveness of psychotherapy have forced clinicians to seriously consider the role that empirically supported treatments play in their practice. Demonstrating accountability is crucial for receiving support from the school administration, teachers, parents, and any helping agency. Overall, based on several literature reviews, it seems that a consensus has been reached about the effectiveness of child group psychotherapy (Dagley et al., 1994; Hoag & Burlingame, 1997; Holmes & Sprenkle, 1996; Kulic et al., 2000). However, a general conclusion indicating that groups for children are effective is no longer satisfactory. We need to progress to a higher stage, in which the question is "Which type of group is effective for which problem?"

In this respect, we need to focus on the distinctions between educational/guidance groups, counseling groups, and therapy groups. Because of the differences between the target populations of each type of group intervention--and hence their goals--it is imperative to distinguish among them so that the goals of each can be matched with realistic outcomes.

Educational/guidance groups are usually used for primary prevention, targeted at normal student populations and primarily aimed at training in social skills. Such groups, which represent the beginning of group work in the school (Horne & Rosenthal, 1998), are often practiced in the classroom setting and not necessarily led by a mental health professional (but rather by a teacher). Because they are held in the classroom, guidance groups can be expected to improve classroom behavior, school performance, and peer relationships. However, they are less likely to yield intrapersonal gains in self-esteem, locus of control, and the like.

These expectations have been confirmed by empirical research (Holmes & Sprenkle, 1996; Shechtman, 1993, 1997). For instance, one study (Shechtman & Bar-El, 1994) performed a controlled comparison of outcomes for classroom and small group interventions: An educational intervention in three junior high school classes was compared with a counseling intervention in three small groups of students drawn from parallel classrooms in the same school, as well as with three control classrooms in another school. Although both interventions produced some positive outcomes compared with the notreatment condition, the gains on self-esteem were higher for the counseling groups. Results suggested that although children with social or emotional difficulties may benefit from both types of interventions, internal difficulties are better addressed through counseling groups.

Counseling groups are targeted at children and adolescents who experience some developmental difficulties for which they need special assistance. Obviously, such needs must be attended to in a small group and led by a mental health professional who knows how to use the group process in the service of the individual child. Small counseling groups often focus on self-esteem and social difficulties (Dagley et al., 1994; Holmes & Sprenkle, 1996), which are actually two sides of the same coin.

Counseling groups lend themselves to treating such areas of deficit. Built on the premise of encouraging close relationships, sharing private information, and giving and receiving support and feedback, they develop capacities similar to those required for close friendship. Under specific conditions of group cohesiveness, children are able to express their concerns and emotions, while the exchange of constructive feedback increases insight. Indeed, the literature supports the effectiveness of small groups in enhancing self-esteem (Hlongwane & Bason, 1990), friendship skills (Rosenthal, 1993), and friendship intimacy (Shechtman, 1994). In a series of studies evaluating outcomes of small counseling groups, some of the same variables (e.g., self-esteem, locus of control) that were not improved through educational or guidance groups were positively affected in counseling groups (Shechtman, 1993; Shechtman, Gilat, Fos, & Flasher, 1996). These variables are extremely important to children's well-being and are highly interconnected with their academic performance.

School achievements are also quite frequently addressed in small groups (Dagley et al., 1994; Holmes & Sprenkle, 1996), usually of an educational type with a focus on academic achievements. However, low-performing children seem to need to resolve certain social and emotional concerns before they can deal with learning, and for this reason counseling groups may better address their needs. A clear illustration of this can be found in a study (Shechtman et al., 1996) of low-achieving students, half of whom (wait-list students) received only intensive academic assistance and half of whom were also treated in therapy groups that had no focus on learning. In 6 months, 75% of the treatment students improved their grades, whereas the wait-list students showed no progress. In addition, the treatment students improved in self-esteem, social status, and self-control, and all gains were sustained at follow-up. Based on the feedback about their experiences that these children provided, it seems that catharsis and interpersonal learning most affected their growth.

Finally, whereas counseling groups are targeted at children with mild difficulties (e.g., social rejection), therapy groups in the school are aimed at children and adolescents with severe adjustment or behavioral problems. These groups must be very small, conducted by experts in a certain type of treatment, and based on unique therapeutic conditions that permit modification of the child's patterns of interaction. Highly aggressive children are one example of a population in need of therapy groups in the school. These children could not be expected to change in educational or even counseling groups, considering their social and cognitive deficiencies, high level of emotional arousal, and lack of self-control.

An example of such therapy groups is the Anger Coping Program developed by Lochman (Lochman, Fitzgerald, & Whidby, 1999), a program based on the Social Information Processing model. The work is carried out in very small groups of five to seven children, led by professional leaders who use a cognitive-behavioral orientation to train the children in the areas of social understanding and problem solving. Research has supported such efforts (Lochman et al., 1999). Another example of positive results can be found in a series of studies on therapy groups with aggressive children, using a multitheoretical approach (Shechtman, 2000; Shechtman & Ben-David, 1999; Shechtman & Nachshol, 1996).

All three types of groups have an important place in the school setting, and together they offer a comprehensive approach to child and adolescent treatment in the school. This particularly calls for increased use of therapy groups, which are currently lacking in the school setting (Hoag & Burlingame, 1997; Kulic et al., 2000). Indeed, in the Holmes and Sprenkle (1996) review, school counselors mentioned many other types of groups that they would like to practice but that are hardly addressed in the school, including groups for children of divorce, children with depressive symptoms, and children who have experienced loss. Therapy groups are the most suitable for dealing with these types of problems. A rise in such groups is indeed evident (see, for example, Schaefer, 1999), but not necessarily in the school setting.

PROCESS RESEARCH ON CHILD GROUP PSYCHOTHERAPY

In contrast to the consensus established regarding the effectiveness of group intervention with children, there is very little research-based knowledge on the processes in the various types of child group psychotherapy (Dagley et al., 1994; Hoag & Burlingame, 1997; Kulic et al., 2000). Such research is essential for the development of a theory of group work with children. Moreover, process research, in contrast to outcome research, informs clinicians about constructive practice, thus improving child group psychotherapy.

The literature on groups for adults offers an established knowledge base on several major issues in group intervention, including stages of group development, a set of therapeutic factors, leadership roles and skills, difficult populations, and ethical considerations (Barlow et al., 2000). Very little is known, however, about these issues in regard to child group psychotherapy (DeLucia-Waack, 1997, 2000).

Some very recent process studies in child group psychotherapy have pointed to several principles that depart, in certain respects, from common knowledge on group work. For instance, regarding stages of group development, it was observed that

young children often start "working" right at the initial stage of group development. A recent study (Leichtentritt & Shechtman, 1998) has suggested that children have a strong need and high ability to self-disclose because initial sessions were already characterized by high levels of self-disclosure and cathartic experiences. Self-disclosure was the most frequent child verbal response, with an average of 12 responses of self-disclosure per session right at the beginning of the group work. These high levels of self-disclosure were generated mostly by structured therapeutic activities or games and questions, which are much less common in adult groups. Even cultural considerations did not limit self-disclosure, as indicated in another study on Jewish and Arab adolescents in Israel (Zina, 2000); despite the expectation that the Jewish adolescents would be more forthcoming, results pointed to a higher level of self-disclosure among the Arab adolescents.

A related finding is the high level of experiencing found in therapy groups for aggressive children. Experiencing is defined as affective self-exploration, including self-disclosure and the exploration of meaningful emotions (Hill & O'Brien, 1999). Out of five types of verbal responses used by the children--asking for help, experiencing, insight, simple responses, and relating to the therapist--experiencing counted for 30% in groups, compared with only 20% in individual treatment. Furthermore, the children in therapy groups used fewer simple responses than did children in individual treatment (Shechtman & Ben-David, 1999). These results suggest that there is more meaningful self-disclosure in the group process.

An important component of verbal interaction is interpretive interaction, including feedback, confrontation, and interpretation (Morran, Robison, & Stockton, 1985). These skills are often used with adults, and they are also considered pathways in groups for adolescents (Cramer Azima, 1989). A study of groups with younger children, however, found that participants used few interpretations (Leichtentritt & Shechtman, 1998). For instance, the average frequency for feedback in the initial stage was .95 and .49 for boys and girls, respectively, compared with 9.82 and 13.87 for self-disclosure. In addition, therapists used more questions and therapeutic games than interpretive interactions in groups with younger children. Similarly, in a study of aggressive children, the leader used about 8% of interpretive interactions, compared with 64% of questions (Shechtman & Ben-David, 1999). A recent study of interpretive interactions in groups for preadolescents (Shechtman & Yanuv, 2001), which investigated their effectiveness (the degree to which they were supportive, positive responses) and productiveness (the extent to which they led to positive behavior in the therapy process), found that children tended to use more ineffective interpretive interactions than effective ones, leading to mostly nonproductive responses. Confrontation was the most frequent interpretive interaction used by children, and it usually generated nonproductive responses, even when effectively presented. Only feedback, when provided in an effective way, produced productive responses.

Another major issue in understanding child group processes is therapeutic factors. A consensus has been established in the adult literature regarding the set of therapeutic factors present in adult groups that are accepted across types of group intervention. However, a study on therapeutic factors in adolescent groups (Shechtman, Bar-El, & Hadar, 1997) found only two factors that were consistent with the literature (catharsis and interpersonal learning), together with a third factor (social skill learning) that is rarely found in adult groups. This latter result was attributed to developmental needs: Because adolescents are very concerned with friendship relationships, social skills are more important for them. Other factors and issues in group work are probably also influenced by developmental needs, as suggested by DeLucia-Waack (1997).

The results of the process research inform practitioners in several ways. Children and adolescents seem to be interested in self-disclosing and in cathartic experiencing. They do it quite often and with little reservation right from the initial stage of group development. Even cultural considerations do not seem to limit self-disclosure, expectations to the contrary notwithstanding: The group process, combined with developmental needs, seems to overcome cultural reservations (Zina, 2000). On the other hand, children appear to react negatively to confrontation, even when presented effectively. Nonetheless, they do react more positively to feedback and to interpretations when they are presented in a supportive and caring manner, rather than in a judgmental way. Finally, children express an explicit need to learn social skills. Although adolescents placed high value on interpersonal learning, which they could use to enhance their social interactions, they seemed to express a need for more practical guidance and training as well.

IMPLICATIONS AND RECOMMENDATIONS

Implications for School Practitioners

The school is a highly suitable place for practicing group work. In this setting, children are naturally organized in groups and perceive group interventions as part of their daily routine. However, even though therapy groups seem to be the most effective groups (Hoag & Burlingame, 1997), they account for less than 10% of child group treatments in general and are virtually nonexistent in schools (Kulic et al., 2000). This may be the result of standards that have been set regarding the level of group leadership required for therapy groups that involve pathological patients (Gazda, 1989; Gladding, 1995). However, the new principles outlined by APA (Division 17 Special Task Group, 1999, Principle 5) free practitioners from using the DSM-IV for population description and permit them to rely on teacher, peer, and staff evaluations. Indeed, many studies conducted in the school rely on school staff evaluations, and some even encourage specially trained teachers to conduct the intervention, which they seem to do successfully (Shechtman, 2000). This approach to therapy groups is congruent with the comprehensive definition of child group psychotherapy. Practically speaking, many of the children in need of group psychotherapy will not receive psychological assistance unless trained teachers or school counselors reach out to them. However, such assistance should not be offered unless parents agree.

For such groups to be successful, one important point should be taken into consideration: To limit labeling and to provide a healthy exchange of interaction, the groups must be heterogeneous, including both children with special problems and regular students (Ritchie & Huss, 2000). For instance, working with a group consisting solely of aggressive children may be counter-productive because negative influences are not buffered and may have long-term negative outcomes (Dishion, McCord, & Poulin, 1999). A mix of aggressive and nonaggressive children within a therapy group offers the opportunity for constructive social learning, through interpersonal feedback and modeling (Shechtman, 2001). The nonaggressive children also help establish a positive working climate necessary for treatment of aggressive children (Hanna, Hanna, & Keys, 1999). Indeed, such working conditions of support and empowerment should not be reserved for working with aggressive children but should be the standard for all children's groups.

Implications for the Theory of Intervention in Child Groups

The most popular theoretical basis for treatment in the school is cognitive-behavioral (Barlow et al., 2000; Hoag & Burlingame, 1997; Kulic et al., 2000). This trend may be related to such factors as the tendency of schools to restrict themselves to treatment of children's cognitive functioning, the structured nature of cognitive-behavioral interventions, their support of time-limited and short-term interventions, and their demonstrated accountability. Yet, the conclusion that cognitive groups are more accountable may simply reflect the underrepresentation of other types of groups in the research literature (Siegel, 1986).

What emerges in the reviewed literature is that children show a high need for self-expressiveness, cathartic experiencing, social acceptance and support, and guidance and training in areas of social deficit. Cognitive-behavioral therapy is strong in offering guidance and training, but falls somewhat short in providing the needed opportunity for emotional experiencing.

An interpersonal approach, which dominates adult groups, seems to be too difficult for children, in that it requires self-exploration, perspective-taking, and dealing with feedback--all of which require some ego strength, which children may lack. What is called for is a theoretical approach that addresses children's needs for emotional expressiveness, social support, and assistance with their practical difficulties. Such a theory has been recently suggested for persons with low psychological ability (McCallum, 1999; Piper, Joyce, McCallum, & Azim, 1998) and with physical illness (Spiegel, 2000).

This theory, named "Expressive-Supportive Therapy," incorporates three fundamental approaches: emotional expression, social support, and cognitive management skills. Social support and the expression of feelings reinforce each other. Intimate social relations both allow and encourage the expression of strong emotions, which in turn stimulate the development of social support. Involvement in such relationships allows participants to better mobilize their existing resources, as well as to develop new sources of support. Moreover, freeing themselves through the expression of strong emotions, children may also open up to learn new coping skills (Spiegel, 2000). The primary objective of expressive-supportive therapy is to improve the patient's immediate adaptation to his or her life situation, build ego strength, and teach problem-solving skills (McCallum, 1999), objectives congruent with the definition of child group psychotherapy (Dagley et al., 1994).

It is easy to see the logic of using the expressive-supportive theory with children: Frequently they are the product of a nonaccepting and critical climate and need some corrective interpersonal experiences in order to change. They need to be attended to with care and support and to be empowered in order to be ready for insight development. Moreover, they need assistance with their immediate emotional and practical difficulties (O'Rourke & Wortby, 1996). Such a modality requires certain leadership skills for working with children.

Implications for Group Leaders

The most recent review on groups in schools claims that only 39% of the group leaders were mental health professionals (Kulic et al., 2000), many of them novices in group treatment with children (Dagley et al., 1994). However, fidelity of treatment and standardization requires proper training of group leaders, especially in unstructured group processes. From the process research cited in this article, it seems that children have different needs and function in a different manner from adults; therefore, special training for leaders of children's groups is required.

First, leaders of children's groups need to be acquainted with methods to enhance children's self-expressiveness and experiencing in group. Children were found to be willing to self-disclose private information, feelings, and experiences once the leader was able to guide them in this direction. Such therapeutic activities as games, puppets, bibliotherapy, art therapy, and music therapy have all been used to enhance children's participation (Leichtentritt & Shechtman, 1998). Such a modality of work requires special leadership skills for working with children, the lack of which has been consistently mentioned (Pfeifer, 1993; Soo, 1993; Sugar, 1993). Examples of suitable activities and techniques for child group intervention can be found in the literature (Hanna et al., 1999; O'Rourke & Wortby, 1996; Shechtman, 1999).

Second, not only do child group therapists need to acquire special techniques, but, more important, they must be cautious in the handling of the group process. As noted in the process studies reviewed herein (e.g., Shechtman & Yanuv, 2001), group leaders should refrain from using confrontations or negative feedback and should be able to educate the group members to interact constructively. Exhibiting acceptance and empathy or providing support is not a natural behavior for children with severe social deficits.

Third, the role of the leader's self-disclosure pattern in child group psychotherapy is not yet clear. In the Leichtentritt and Shechtman (1998) study, high rates of the leader's self-disclosure were observed. This relatively high level of disclosure was attributed to the leader's attempt to model the behavior to the children and to legitimize it. Further exploration of such a leader's role in child group psychotherapy is needed.

In sum, child group psychotherapy should be treated as a unique profession. Special training for leaders of children's groups should be offered in the counseling programs, taking into account the type of intervention and the target population.

Implications for Further Research

Although a consensus has been established regarding the effectiveness of child group psychotherapy, the number of studies based on rigorous research methods is relatively limited. The Hoag and Burlingame (1997) review included only 56 outcome studies in 23 years (1974-1997). Durlak and Wells (1997), focusing on prevention groups, found only 27 studies in a period of 12 years (1980-1992). In the latest review, also focusing on prevention groups in the school, and after loosening somewhat the criteria for inclusion, 75 studies were mentioned over a 10-year period (1990-2000; Kulic et al., 2000).

Many studies with inadequate research bases are published in the literature. What is needed is rigorous methodology, including pre-post, experimental, and control designs; a clear description and monitoring of the intervention; a large enough sample; several group leaders; replication of the studies; valid multiple instruments; and follow-up measures (Division 17 Special Task Group, 1999). Many of the reviewed studies do not meet such requirements; follow-up measurement, leader expertise, and control groups are particularly in need of improvement (Kulic et al., 2000). Moreover, although sample size has increased to an impressive average of 100 participants, in group treatment it is the group rather than the individual that should be the unit of measurement. Beyond these deficiencies, generalized results suggesting effectiveness of group work with children and adolescents may be misleading because different types of groups seem to produce different results. More research focusing on specific types of interventions or on the comparison of outcomes across types of intervention (Shechtman & Bar-El, 1994) are needed to produce more accurate results.

Therapy groups, although absent from the school setting, seem to be the most effective type of treatment (Hoag & Burlingame, 1997). Yet, it is not clear why such groups are so effective: Is it the setting, the group leader, or the different clientele? As the number of children with social and emotional special needs increases and given that many will not get support outside of the school, it is important to move such practice into the school and to study its effectiveness in the school setting.

Professional counselors are more informed about outcomes than about process in regard to child group psychotherapy. This is an area just beginning to evolve, and very little is yet known. Child group processes should be intensively explored to learn about both the curative factors and the failures in such groups. The leader's characteristics and training is another issue in need of further investigation. Finally, children's characteristics that may predict success or failure in group treatment should be explored in future research.

Limitations and Recommendations

This article was written with the goal of organizing cumulative knowledge on child group psychotherapy, summarizing what is known about outcomes and processes in children's groups, and pointing out what is yet to be learned. It was not meant to present an exhaustive literature review but rather highlight some important issues in child group psychotherapy.

Two conclusions may be drawn from this review: First, group psychotherapy of all three types is effective with children, provided that suitable goals are set for each. This includes therapy groups in the school for children who have more difficulties, a type of therapy underpracticed in the school setting. The three types of group interventions complement each other, and together they offer a comprehensive approach to counseling services in the school.

Second, process research is really in its infancy. We know very little about how children interact in groups or what the leader's role is. Research on these topics is strongly encouraged in order to guide practitioners in selecting a theory and methods for working in such groups.

The fact that a great deal of the research, particularly process research, has been done in Israel (see the review by Kulic et al., 2000) raises certain reservations and questions. Conducting research on therapy in one particular setting limits the possibility to generalize results (Division 17 Special Task Group, 1999, Principle 7). Replications of such efforts are needed in other cultures and settings to derive more subtle conclusions.

Are such replication efforts a realistic expectation? That depends on the willingness of schools to incorporate more groups of child psychotherapy, particularly therapy groups. Other Western societies have the same needs and knowledge to introduce more counseling services in the school setting. Whether schools can organize their schedules to accommodate group intervention is really a matter of value choices; once the decision is made to use this method of treatment, schools will find a way to include these groups.

In sum, this exploration of existing research suggests that professional counselors know but a little about child group psychotherapy at the threshold of the new millennium. Considering the increasing need for counseling services in the school, and the demonstrated effectiveness and efficacy of group psychotherapy for children, this method of treatment must be further explored in order to assist practitioners in finding the most suitable practice for helping children in schools.

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Teaching Assessment and Appraisal: Humanistic Strategies and Activities for Counselor Educators

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♦ ♦ ♦

This article describes the incorporation of humanistic strategies and interactive activities for counselor educators who teach counseling courses in assessment or appraisal. This information helps demonstrate the utility of practical humanistic knowledge and skills for this important Council for Accreditation of Counseling and Related Educational Programs core course requirement.

♦ ♦ ♦

The Council for Accreditation of Counseling and Related Educational Programs (CACREP; 2001) currently requires students in CACREP-accredited programs to receive curricular experiences and to demonstrate knowledge in assessment (also known in various counseling programs as appraisal, testing, or educational and psychological testing). For the purposes of this article, we use the term *assessment* to be interpreted as appraisal or assessment. With the adoption of CACREP's 2001 Standards (<http://www.counseling.org/cacrep/2001standards700.html>), the word *appraisal* has been replaced with *assessment*. The terms are used interchangeably here. According to CACREP's *The 2001 Standards*, assessment or appraisal is defined as "the gathering and analysis of data used in evaluations and decision making" (see Glossary). The specific core curriculum standards under Assessment include the following:

- a. historical perspectives concerning the nature and meaning of assessment;
- b. basic concepts of standardized and nonstandardized testing and other assessment techniques including norm-referenced and criterion-referenced assessment, environmental assessment, performance assessment, indi-

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- vidual and group test and inventory methods, behavioral observations, and computer managed and computer-assisted methods;
- c. statistical concepts, including scales of measurement, measures of central tendency, indices of variability, shapes and types of distributions, and correlations;
- d. reliability (i.e., theory of measurement error, models of reliability, and the use of reliability information);
- e. validity (i.e., evidence of validity, types of validity, and the relationship between reliability and validity);
- f. age, gender, sexual orientation, ethnicity, language, disability, culture, spirituality, and other factors related to the assessment and evaluation of individuals, groups, and specific populations;
- g. strategies for selecting, administering, and interpreting assessment and evaluation instruments and techniques in counseling;
- h. an understanding of general principles and methods of case conceptualization, assessment, and/or diagnoses of mental and emotional status; and
- i. ethical and legal considerations. (CACREP, 2001, Section II. K.7)

Although no specific study exists, our consensus from speaking with other counselor educators at state, regional, and national counseling conferences, as well as our own experiences within our counseling programs, is that teaching courses in assessment are often the least "sought" after course within a counseling program. Equally, we often find that assessment courses are given to new junior faculty, with many senior faculty "celebrating" (e.g., "woo-hoo!") they no longer have to teach the course. In fact, during each of our current position interviews, the direct question of "Are you willing and able to teach assessment and testing if hired?" was asked.

We have also found that students within counseling programs often dread and fear this course above all others. In fact, student evaluations in assessment courses are 30 percentile points lower than other classes that do not include statistics or issues of empirical assessments (Centra, 1993). When we asked students about their expectations about the course, we were surprised at some of their responses. One student responded that she had no expectations for the course but just wanted to survive it because it was a required course. Other students also responded that this was one of the courses they were least looking forward to and that they saw little relevance in this course to their professional goal of becoming a counselor. They wanted to "counsel" clients, not "test" them or "dehumanize" them through standardized quantifications of complex human interactions and characteristics. In addition, many students believed that testing was only for psychologists. In many states across America, counselors are trained to administer and interpret all assessments that psychologists provide. Many students state that they went into counseling, not psychology, because they do not like assessment.

For new faculty and counseling students, teaching and/or learning the statistical and psychometric components that constitute one aspect of the course is often the most feared component. In fact, one author was shocked to have a student come up to her after the first week of class terrified. The student shared with the instructor that this was her third attempt at taking the course. The previous two times she had dropped the course after the first 3 weeks because she became so overwhelmed with the statistical and psychometric components of the course. The student needed to pass the course this semester so that she could begin her internship the following semester. The instructor asked the student to remain in the course until after the midterm examination and the first written assignment, and if after that period the student was still feeling overwhelmed the instructor would let her drop without penalty. This student remained in the course and successfully completed the course work.

As junior faculty teaching such courses within CACREP-accredited programs, we have taken this challenge on as a way to make courses rewarding and enjoyable for both students and for us. Equally, we wanted students to learn the incorporation of humanistic strategies in understanding and conceptualizing client concerns. We embarked on a journey of demystification! Thus, the purpose of this article is to describe some effective humanistic strategies and interactive activities for counselor educators who teach counseling courses in assessment, appraisal, and testing. Our hope was that, by modeling basic humanistic principles through specific creative interactive strategies, students would gain insights into the importance of humanistic approaches in an often dehumanizing assessment process. Guiding our rationale and approach for humanism in assessment are some of Raskin and Rogers's (1989) basic premises of humanistic psychology, including the following: (a) People's creative processes are a crucial force; (b) a holistic approach is more adequate than an elementaristic one; (c) counseling is based on a good human relationship; and (d) it is important and necessary to take humans' subjectivity, opinions, and viewpoints fully into account. Thus, our goal in teaching this course is to actively engage students in the learning process, coupling humanistic and practical applications along with content material. As such, we want students to leave these courses understanding that assessment can be humanistic and is an integral part of the counseling process. Additionally, we stress that competent counselors can be humanistic while also having a working knowledge of the statistical and psychometric principles involved in assessment, appraisal, and testing.

FIRST CLASS: THE FIRST NIGHT OF FRIGHT

Puzzle Activity: Framing Your Client

Recognizing a need to get students "hooked" on the concept of assessment, appraisal, and testing on the first night of the course, we incorporate a fun activity to foster a nonthreatening learning environment. Students on the first night are divided into groups of four or five, depending on the number of students. The instructor gives each group of students a box containing a

jigsaw puzzle with the picture covered. Thus, the students are unaware of the jigsaw puzzle picture. The different puzzles contain a variety of pieces (e.g., a 100-, 250-, 500-, or 1,000-piece puzzle set). Student groups are first instructed to place all the puzzle pieces in front of them, picture side down so no aspect of the puzzle can be seen. The instructor then facilitates a brief discussion among students as to their idea of what the puzzle is. Naturally, students have no clue to what the puzzle is. Parallels are then made to not knowing what the puzzle is as it relates to not knowing what specific issues clients bring to the counseling process.

Students are then instructed to turn over the individual puzzle pieces and begin placing the pieces together. As students progress with the exercise, the instructor visits each group facilitating discussion on whether or not students realize what the puzzle picture is, with many students needing to put as many pieces together as possible to gain an accurate idea of the final picture, because a few pieces do not reveal the "true" picture. Typically, most student groups begin forming the border of the puzzle, because these are the most identifiable pieces. Discussion usually develops around the importance of being able to put a "frame" around what is the nature of the client's concern.

As this exercise continues, typically, students with fewer puzzle pieces begin formulating hypotheses regarding the puzzle picture whereas those with more puzzle pieces are struggling to pull together the borders. The exercise usually concludes with a discussion relating the puzzle to potential future clients. For example, some client concerns may be more fragmented (i.e., more puzzle pieces) than concerns of others. Additional process questions for this activity include (a) "How is this puzzle like your client?" (b) "How is the process of putting the puzzle together like the assessment process?" (c) "What did you need to finish this project?" and (d) "How were you as a group able to complete the puzzle?" As a variation to this activity, several puzzle pieces from one box can be removed and added to another box. This can lead to a discussion about what to do when you are missing parts of the puzzle in your client and what to do when you find information that does not fit your client.

OTHER USEFUL ACTIVITIES

In addition to the puzzle activity, we incorporate a variety of activities throughout the course to engage students and make the content more humanly applicable. The following activities address reliability and validity, family assessment, and multicultural considerations in testing bias.

Reliability and Validity Activity

As previously stated, CACREP's *The 2001 Standards* require that students have curricular experiences and demonstrate knowledge in reliability and validity as a part of assessment. We have found that students are skilled at

memorizing the definition of terms but often lack a working knowledge and applicability of such terms. To provide our students with a more applicable learning experience, we administer the Oreo Cookies Personality Test (n.d.).

The Oreo Cookies Personality Test begins with the following stem question: "Choose which method best describes your favorite method of eating Oreos." The individual is asked to select 1 option from a list of 10 methods (e.g., "The whole thing at once," "One bite at a time," "Slow and methodical nibbles examining the results of each bite afterward," and so forth). For each of the 10 methods there is a corresponding personality description. For example, if an individual reports eating his or her Oreo in "Slow and methodical nibbles," then the corresponding interpretative personality profile states: "You follow the rules. You're very tidy and orderly. You're very meticulous in every detail with everything you do . . ."

Just prior to the administration of this test, we supply students with two Oreo cookies apiece (dietary equivalents available). Students are instructed to form into pairs, each with their own Oreo cookies. Students then take turns with their partner, each eating the first Oreo cookie in front of the other while the other observes. The process is then repeated between the two with the second Oreo cookie (reliability: does the person eat the two Oreos the same or different?). Then, the test is administered.

After administering this test, we discuss the reliability and validity of the test and how the students can go about testing the reliability and validity of the Oreo Cookies Personality Test. Sample process questions include (a) "Is this test reliable?" "How do you know that it is or is not reliable?" (b) "Is this test valid?" "How do you know that this test is or is not valid?" (c) "How would you go about testing the reliability of this test?" (d) "How would you go about testing the validity of this test?" and (e) "What is the relationship between the reliability and validity of this test?"

By using the Oreo Cookies Personality Test, not only do students have to know the concept of reliability and validity, but they are challenged to apply that knowledge in a fun and creative manner.

Family Assessment Activity

One aspect of assessment and testing involves the assessment of families. Family assessment has been recognized as difficult because of all the complex family interaction patterns that might involve the different family members (Davis, 2001; Minuchin, 1974; Whiston, 2005). One useful and fun exercise incorporated into class based on our own experiences in conducting family assessment is what we have called *Jenga Therapy*. Jenga[®], a game manufactured by Milton-Bradley, involves the building of a tower of blocks one at a time, each person taking a turn removing a single block from the foundation of the tower of blocks and placing it on top of the tower. The game continues until the removal of one particular block results in the tower tumbling. A single game can generally be completed within 30 minutes.

To demonstrate assessment of family interaction patterns, we elicit volunteers from the class to represent a family. We then place the game, in-box, on a table in front of the volunteer family, the class observing from the side. No instructions are given from us, except to request from the volunteer family to "begin play." Sample process questions from family assessment literature (Nichols & Schwartz, 2004) include the following: (a) What are the interaction patterns of this family? (b) Who is the leader in this family? (c) Is this family competitive or cooperative? and (d) What are the alliances in this family? Observations from this activity typically demonstrate that one or more participants will become directive (i.e., the leader) in how to facilitate the game, that alliances will form throughout the game (i.e., males vs. females; children vs. parents, etc.), or that the family will either encourage or discourage one another during a turn (i.e., competitive vs. cooperative interaction patterns). Such observations have been identified in the family therapy literature as germane in assessing families and their level of functioning (Bowen, 1978; Haley, 1987; Minuchin, 1974).

Multicultural Activity: Bias in Testing

In accordance with CACREP (2001) requirements, and, more important, to reflect changing and diverse demographics, students learn the role of assessment with diverse populations. One activity we incorporate to demonstrate the limitations of some assessment procedures involves diversity in language.

At the beginning of this particular class, students are asked to clear their desk for a "pop quiz," the quiz representing their daily grade for this particular class in the course. We then distribute the pop quiz, face down to all students. Once all students receive the quiz, we instruct them to turn over the quiz and complete as much of it as they can in 5 minutes. What students see is a list of 20 words they are to write definitions for. The catch is that all the words are in a language other than English (our example quiz uses words from an older Nordic language). Students are typically dumbfounded about how to respond, some laughing in frustration, although the instructor remains steadfast in the seriousness of this quiz as their daily grade.

Once students have completed the "quiz," we ask each student to exchange his or her quiz with another student for grading. We then call on students to define each word as they grade their fellow students. Students are usually at a complete loss, although some interesting definitions are offered! Typically, students miss all 20 words.

We then collect the quizzes, noting to the students how terribly they all did and that they have received a failing daily grade. Although we eventually inform students that the quiz really did not "count" as a daily grade, some interesting discussion usually ensues. Sample process questions include (a) "How did you all feel when you first saw the content of the quiz?" (b) "How fair did you think this quiz was?" (c) "Did this quiz accurately measure your knowledge?" and (d) "What if your score on this quiz deter-

mined whether or not you would be admitted into this counseling program, into college, or for a job position?"

Demonstrated within this assessment activity, and consistent with the humanistic principle, is the importance of fully taking into account a person's subjectivity. Equally apparent is the principle that meaningful personality assessment is not elementaristic (e.g., solely based on one form of assessment measure), but rather that an assessment approach that integrates information from a variety of sources may more fairly and holistically represent the person.

DEVELOPING SKILLS

Skills training in the interpretation of assessment results requires students to develop and demonstrate basic humanistic skills germane to the counseling relationship (i.e., collaboration, facilitation, explanation, listening skills, reflection statements, clarification, and information gathering). Thus, it is important that students taking courses in assessment have the opportunity to practice such interpretation skills, under supervision, to begin their development of the necessary humanistic skills to effectively use tests in counseling. In our courses, students have the opportunity to develop and receive feedback related to their interpretation skills.

Our courses give students the opportunity to complete several inventories (e.g., Strong Interest Inventory [Strong, Hansen, & Campbell, 1994], Myers-Briggs Type Indicator [Briggs-Myers, McCaulley, Quenk, & Hammer, 1998], Sixteen Personality Factor Questionnaire [Cattell & IPAT Staff, 1994], and the Coping Responses Inventory [Moos, 1993]). Not only are these widely used inventories within the counseling profession, but students often learn much about themselves and each other in this process. After scoring procedures are explained and completed, students typically break into groups of 4 to 5, with each student taking a turn (i.e., round-robin) helping another to interpret his or her results. These sessions are videotaped for feedback from other students in class.

This aspect of the course receives very favorable feedback from students, and they learn the importance of developing humanistic skills related to interpretation. Specifically, students are encouraged to minimize the use of "fancy scientific jargon" in helping others make meaning from their results.

IMPLICATIONS FOR TEACHING ASSESSMENT

Assessment can be an engaging and humanistic course in which students learn to appreciate assessment as an integral part of the counseling process with a little creative initiative from the instructor. The incorporation of creative and humanistic activities as they relate to understanding and conceptualizing course content receives favorable feedback from students in course evaluations. Specifically, students report their appreciation for the instruc-

tor making the course enjoyable through the use of such humanistic activities, helping them to effectively process and integrate complex material. As instructors of this course, we also receive a great deal of enjoyment and satisfaction from the students during the learning process.

Our hope, in this article, is to offer some useful and fun activities to counselor educators who may have recently been assigned this teaching assignment, as well as others who have taught this course and are looking for ways to incorporate something new. Our rationale and approach for incorporating humanistic activities in assessment are based within the fundamental principles of humanistic psychology that values creative processes, holism, human relationship, and subjectivity of experience. We want students to leave these courses understanding that assessment can be humanistic and is an integral part of the counseling process. Additionally, we stress that competent counselors can be humanistic while also having a working knowledge of the statistical and psychometric principles involved in assessment, appraisal, and testing. As new junior faculty in our respective CACREP-accredited counseling programs, we have taken the assessment and appraisal "Olympic" torch and have run with it! We may have not won "gold" yet, but given positive student feedback, we feel we are heading in a good direction.

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The Play Theory and Computer Games Using in Early Childhood Education

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ABSTRACT

The article describes the role of play in child's development and identifies the characteristics of mature play in preschool age. The paper gives an overview of the computer games for preschool children used in Russian kindergartens. The research conducted with 50 Russian kindergarten teachers provides the analysis of the most important factors of computer programs selection made by teachers for their classroom activities. It is analyzed whether the factors concern the theory of children's play and whether the kindergarten teachers need the scaffolding program for choosing computer games appropriate for children's development. It is described the essence of the scaffolding program. They are formulated the criteria for evaluating computer games to make classroom activities developmentally appropriate.

Keywords: *Computer Games, Developmental Education, Early Childhood Education, Kindergarten Teachers' Scaffolding, Mature Play, Play-Based Learning, Scaffolding*

INTRODUCTION

The main problem facing today's kindergarten teachers all over the world is the constant pressure to teach more academic skills at a progressively younger age cutting down the time for traditional Early Childhood activities. In contrast with this fact psychologists and education researchers stress play as preschool children leading type of activity, providing necessary skills and effective socialization (Vigotsky, 1977, Elkonin, 1978, Zaporozhets, 1978). Intellectual and social benefits of play

in early years have been documented by many researchers (Lester & Russell, 2008, Vigotsky, 1977). Children engaged in play experiences are more likely to have well-developed memory skills, language development, and are able to regulate their behavior, leading to enhanced school adjustment and academic learning (Bodrova & Leong, 2005).

Following Bodrova and Leong (2003) nowadays young children spend less time at home playing with their peers and more time playing alone, in the classroom they tend to rely on realistic toys and props, and have a hard time using their imaginations to invent a

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substitute for a prop they do not have. During the long time of play observation in kindergarten classrooms in Russia, China and France the authors of this article marked that very often children had frequent problems to try a new topic or plot, they mainly chose the familiar scenarios of family, school, or hospital. According to that observation results and based on other researching (Kravtsova, 1996) we can conclude that play which take place in many of today's kindergarten classrooms does not fit the definition of mature or well-developed play. Even 5- and 6-year-old children who according to famous Russian psychologists Vygotsky and Elkonin should be at the top of their play performance often show immature play signs more typical for toddlers. Bodrova and Leong (2008) underline that important factors influencing such a serious situation with children's development are following: increasing adult-directed forms of children's learning and recreation; proliferation of toys and games that limit children's imagination, substitution of real play by "play impostors".

Analysis of the software for children shows the huge opportunities that computer games have for intellectual, emotional and social development, as well as for children's learning (Verenikina, 2003). As we suppose, the main goal for contemporary early childhood education practice is finding a balance between uncontrolled children's playing computer games and adult-directed activities for using computer programs to train or even drill children's academic skills. According to the theory of play and children's development phenomena computer games and gaming platforms first of all should make an emphasis on make-believe play and take into account the stages of play. Moreover, Susan Haugland (1992) underlines that adults play an essential role when computers are used successfully with young children. Meanwhile the survey showed the problem of negative attitude of significant amount of the Russian kindergartens teachers to computer games and their using in the classroom (Sokolova&Gerkushenko, 2002). The present paper is based on the idea of scaffolding children's play by means of planed

including of computer games into kindergarten classroom activities. Such scaffolding can be possible if kindergarten teachers are ready to guide children in the world of computer games: the have positive motivation and necessary competency for choosing and using computer games in the classroom.

1. MOTIVATION

In 2011 International Center for the Childhood and education of Volgograd State Socio-Pedagogical University started the project "Childhood without borders". One of the objectives of the project was to support innovative practices in preschool education. The project had a number of subprojects which were oriented to different areas of children's development. One of subproject realized cooperatively with Volgograd State Technical University was dedicated to using Information and Communication technologies in kindergarten. Main participants were teachers from municipal kindergartens. Totally 10 kindergartens were involved in the project. The essence of this subproject was in complex analysis of using computer games in kindergarten for improvement of children's development. The area of problems we investigated was the competent scaffolding of children's play activity as the necessary tool for their learning and development.

The necessity of the research can be explained with the results achieved in 2002 when we define the kindergarten teachers' attitude to computer games for children. We found that on average 90% of surveyed kindergarten teachers had negative attitude to computer games for young children. The interviews showed that teachers first of all were concentrated on possible harm that computer games can bring to children's physical development. They were afraid that computer games can damage children's eyesight (88%), cause their psychological dependence (49%), damage social skills like adapting, cooperative communication etc. (35%) (Sokolova&Gerkushenko, 2002). Such

negative tendencies in teachers' opinions were received as teachers supposed first of all the situations of uncontrolled children's gaming, secondly the situations when children play computer games during their boring time, thirdly the examinees teachers mentioned on individual games where there is no possibility to cooperate with a peer. Most of the interviewed teachers (75%) never used computer games in their classroom supposing such a play activity as a redundant one and unfit for didactic goals.

Ten years have passed and contemporary kindergarten teachers use computer technologies much often than before. But still now computer games are not assessed by kindergarten teachers as learning tools. They prefer to use such games for physical diseases correction or for diagnostic reasons. Meanwhile Papert (1998) stresses that computers have an impact on children when the computer provides concrete experiences, children have free access and control the learning experience, children and teachers learn together, teachers encourage peer tutoring, and teachers use computers to teach powerful ideas. According to these ideas and the theory of play as the most powerful learning tool for preschoolers, the hypothesis of the present study we conclude in the statement that kindergarten teachers' deliberate analysis of the play component of computer games could provide the enhancement of classroom activities quality by the developmentally appropriate choices of computer games.

2. PARTICIPANTS AND METHODS

The research was carried out in Volgograd city over a two-year period 2011-2012 and involved 50 Russian kindergarten teachers who used computer software in education process. It aimed firstly to answer research questions:

1. What are the most important factors for selection computer programs by teachers during children's classroom activities?
2. Whether the factors concern the theory of children's play development?
2. Do kindergarten teachers need the scaffolding program for their choice of computer games for using in the classroom? What should be the essence of the program?

The methods chosen to carry out the research concerned theoretical and empirical studies. Leading theoretical research we used methods of analysis, synthesis and classification. The empirical studies included teachers' narrative interviews, the questionnaire analysis, and the experiment.

For answering the research questions we used combination of open and closed type of questionnaires where teachers could choose the variant of answer or could write their own answer. The second goal was planned to achieve by organizing kindergarten teachers' learning community for analysis the scaffolding methodology of children's play development with support of computer game programs.

The structure of research participants is shown in the Table 1.

3. THEORETICAL STUDIES

3.1. Play-Based Learning in Preschool Age

Play-based learning as a phenomena can be defined as a "context" for young children's learning where they organize and comprehend their social environment, communicate actively with people, objects and ideas. Jean Piaget (1962) and Lev Vygotsky (1978) were among the first who link play with children's development. Roskok and Christie (2001) underline that play is not a singular construct but rather a continuum of playful behaviors that children engage in the context of Early Childhood classrooms, encompassing a set of behaviors that vary in terms of the degree of adult guidance and support. During the growing process new levels of play appear when children move from infancy to preschool age. There are several classifica-

Table 1. The structure of kindergarten teachers

Amount of teachers		Teachers' age			Experience of work		
4-5 y.o. classroom	5-6 y.o. classroom	Less than 30 y.o.	30-40 y.o.	More than 40 y.o.	Less than 5 years	5-10 years	More than 10 years
10	40	5	18	27	2	5	43

tion schemes for the play of young children. Piaget (1951) described three stages of play, in which children's ability to think symbolically corresponds to the structure of the play. The first level is associated with the sensorimotor stage and is called functional or practice play and consists of repetitive motor movements with or without objects. Second level concerns symbolic, or pretend, make-believe play. The last stage of Piaget's classification contains games with rules, which is based on children's understanding and following rules in play activities. Parten (1932) described four categories of children's play: nonsocial play, parallel play, associative play, and cooperative play. Those two last levels of play represent higher levels of interaction when children actually play together, doing similar things and coordinating their actions (Parten, 1933, in Dockett and Fleer, 1999).

An essential characteristic of child's play is pretending which is an action and interaction in an imaginary, "as if" situation, it usually contains some roles and rules and the symbolic use of objects (Leontiev 1981, Nikolopolou 1993). The investigation of the relationship between the quality of play and children's educational outcomes discovers that mature (well developed) play is the most powerful tool for children's learning and development. Bodrova and Leong (2003) define several quality characteristics of mature play such as:

1. *Imaginary situations* when children assign new meanings to the objects and people in a pretend situation. When children pretend, they focus on an object's abstract properties rather than its concrete attributes. They invent new uses for familiar toys and props when the play scenario calls for it.
2. *Multiple roles* which are not stereotypical or limited; the play easily includes supporting characters. For example, playing "hospital" does not mean that the only roles are those of doctors. Children can also pretend to be an ambulance driver or a phone dispatcher. When children assume different roles in play scenarios, they learn about real social interactions that they might not have experienced (not just following commands but also issuing them; not only asking for help but also being the one that helps). In addition, they learn about their own actions and emotions by using them "on demand." Understanding emotions and developing emotional self-control are crucial for children's social and emotional development.
3. *Clearly defined rules*. As children follow the rules in play, they learn to delay immediate fulfillment of their desires. Thus, mature play helps young children develop self-regulation. To stay in the play, the child must follow the rules.
4. *Flexible themes* which are flexible enough to incorporate new roles and ideas previously associated with other themes. When children play at a more mature level, they negotiate their plans. By combining different themes, children learn to plan and solve problems.
5. Extensive use of language by children to plan their play scenario, to negotiate and act out their roles, to explain their "pretend" behaviors to other participants, and to

regulate compliance with the rules. As the repertoire of roles grows, so do children's vocabulary, mastery of grammar and practical uses of language, and metalinguistic awareness.

6. *Not limited length of play* which can last for many days as children pick up the theme where they left off and continue playing. Creating, reviewing, and revising the plans are essential parts of the play. Staying with the same play theme for a long time allows children to elaborate on the imaginary situation, integrate new roles, and discover new uses for play props.

The theoretical analysis of the research papers of Lev Vygotskiy's (1977), his student Daniil Elkonin (1978) and his follower Elena Bodrova (2010) on outcomes of children's development through game-based activity gave us opportunity to make a list of principal ways in which computer games could influence children's psychological development.

1. **Motives:** Computer games can affect child's motivation. Effective play scaffolding gives good opportunity to develop motives from the forms of affective immediate desires to a hierarchical system of children's goals. Evidently it is more productive if the software gives possibility to children fix their planning results in graphic form (written or painted).
2. **Decentration:** Computer games can facilitate cognitive decentering. As a play role is the basement of such a decentering it is demonstrated in appearing of a role name and a role speech. This ability to take the role provides the possibility of new relationship form such as "I am" – "I am in role" where children can understand the difference between their actual position and the position of the objects, whose role they are playing.
3. **Mental Development:** Computer games can advance the development of mental representations. Such a development takes place as the result of a child separating the

meaning of objects from their physical form. In ordinary games it happens from using replicas to substitute for real objects, through using new objects which can perform the same function as the prototype, to such a substitution which takes place in the child's speech with no objects present.

4. **Self-Regulation:** Computer games can foster the development of children's deliberate behavior. It happens because of the necessity to follow the rules of a game. Later, this deliberateness extends to mental processes such as memory and attention.

The research work guided by some investigators of digital games for children (Verenikina & Kervin, 2011) made it possible to identify the following criteria for the analysis of computer play to promote young children's development: motivation, context, path and access. According to these authors analyzing the "Motivation" criteria it is important to know: whether it is intrinsically fun and not limited in scope to "teaching" particular skills, whether it allows play for the sake of play and whether it operates at the outer and growing edge of a player's competence. The criteria of a game "Context" allows to find out if the game relates to daily life and child can use familiar objects, and whether the game presents opportunities for problem solving and can be incorporated into children's imaginative play. According to the "Path" criteria it is necessary to identify:

- Whether the game is oriented to discovery when children explore situations in an open-ended manner;
- Whether it allows the manipulation of symbols and images on the computer screen which can engage children in make-believe play by creating situations of pretend;
- Whether it provides the collaborative engagement of children in the game;
- Whether it provides visible transformations when children's decisions and choices have consequences and contribute to the game world;

- Whether it enables the increasing of complexity when children can move to more complex levels of the program.

The criteria of “Access” allows teachers and parents to define if the game provides spoken directions which is important as children may not be old enough to read, or contains advices when children need assistance;

3.2. Classification of Educational Computer Games for Preschool Children

Educational game-based computer programs for early years children are primarily oriented for 3 to 8 years old users and according to developers are made with the ideas that play is the main activity for that age category. Classification of educational computer games is needed both for teachers and games developers. Teachers can find easily the necessary program if headings give answers for such questions as “The games for 3-4 years old children”, “The games for speech development”, “Programs with animals images” etc. Moreover, for developers such classifying is helpful for their professional analysis of educational games market. Our analysis of educational computer programs existed in Russian computer market highlights following big groups of children’s computer games:

1. **Developmental Games:** These programs can be described as “open” type ones, where the goal is not defined clearly and games become tools of children’s creativity and self-expression. First of all these games are good for development of common cognitive abilities such as analysis, synthesis, critical thinking and others which are the basement of many kinds of human activities. Secondly, they can be a very strong tool for development children’s imagination and emotions. Such developmental games have a big potential for using them in education process of kindergartens being basement of lessons or other children’s extended activities (Perlmutter, 1985, Haugland, 1992).
2. **Learning Games:** These game programs are made especially for didactic goals and can be described as “closed” ones. Children are supposed to solve any learning task in a form of play. These are games for early mathematic learning, learning letters and sounds of language, writing through reading and reading through writing, for learning some ecological knowledge etc.
3. **Games–Experimentations:** Goals and rules here are not defined very clear and are hidden in the game’s plot or in the management tools. To succeed a child need to discover the goal and the mode of action by searching and solving problematic situations.
4. **Games for Entertainment:** Such games do not have any goals by the first sight; they give opportunities to have some fun and to see the result of the game as a “micro cartoon”.
5. **Computer Games for Diagnostic:** In spite of the fact that all developmental and learning games could be defined as diagnostic games, there are special computer programs which can be identified as psycho diagnostic and validated methods. Those programs fix and memorize given parameters, then process and memorize the results. Further, the results could be shown on the display or be printed for interpretation by psychologist. Moreover variants of interpretation can be programmed and given by computer automatically. Results of diagnostic can be given as recommendations to kindergarten staff or parents. Also these types of programs can be computer methods of express diagnostic of different systems of child’s organism; they provide opportunities to define pathologies very fast. Empirical analysis shows that such programs can be used in kindergartens for: diagnostic children’s general cognitive skills; evaluation of development psychological functions: memory, attention etc.; diagnostic of creative abilities of children; identifying readiness of children to kindergarten life; identifying readiness of

children to school life; express diagnostic of child's fatigue during computer usage.

6. **Computer Games for Therapy and Correction:** Kindergarten specialists use such games to correct or cure some physical or mental diseases. In inclusive kindergartens there are very useful game-programs for blind and deaf children, autistic children and others.

4. THE EMPIRICAL STUDY

4.1. Assessing Kindergarten Teachers' Potential in Using Game-Based Software

Before assessing the situation with using computer software in work with children we made a short survey on the teachers' understanding of children's play activity essence to contextualize our present research. The questionnaire included three dedicated questions on the importance of play in preschool age, essence of play, using of play in kindergarten classroom activities.

1. Answers to the first question "Do you think play is important for children's development?" were as follows:

100% of teachers are sure that play is very important for children and it is very good way for learning.

2. The second question was open when teachers could answer using their own ideas. The investigation on the teachers' thoughts of children's play showed that:

5% of examinees think that play is children's activity during their spare time;

10% of interviewed teachers suppose that play is every activity made by children including gardening, painting etc.

30% of teachers think that play essence is fun and pleasure;

55% of kindergarten teachers are sure that essence of play is in pretending. 80% from these

teachers prefer to organize "as if" situation for children to achieve the curriculum goals and only 20% try to be a part of children's imaginary situations give children opportunity to create their play freely.

3. Asking the questions "Do you use play organizing your classroom activities? What types of play do you organize?" we collected following data:

100% of teachers use play in their classroom. They told that almost all activities that they organize with children they do in the form of play.

100% of interviewed teachers organize didactic play with children where learning goals are defined clearly, rules are necessary to accomplish. Didactic games used in kindergarten can be organized like board games, word games or games with objects.

Thus, the findings can be summarized as follows: 1. Teachers mean different things by "play". 2. The relationship of play to learning activity was articulated by all examined kindergarten teachers. 3. Even when teachers said about importance of play, or that play leads to learning, they were usually referring to an understanding of play as a highly scripted, teacher-directed activity.

The situation of multiple visions of teachers on the play essence on the one hand and the teachers' confidence in importance of play activity for children's learning on the other hand determine the character of the experimental work.

First stage of our experiment was dedicated to defining whether teachers used computer software in education process and if they used it what kind of software it was. To collect the data we prepared a combined type questionnaire where teachers should mark whether they use computer for children's education and then write the preferable software for classroom usage. The result is shown in the Table 2. Our statistics indicates that 40% of teachers do not use at all computer software for organizing children's activities. As it is very big percent of research

Table 2. Using software by kindergarten teachers

Computer software		Teachers (%)
Do not use computer software		40%
Use computer software:		60%
1.	Power Point presentation	92%
2.	Multimedia resources (audio, video)	15%
3.	Computer games for diagnostic	12%
4.	Computer games for therapy and correction	18%
5.	Computer games for learning	56%

participants we organized further analysis of such a result reasons. We drafted open type questionnaire where teachers had to write the main reason of avoiding the computer games in organizing classroom activities (Table 3). Meanwhile 60% of kindergarten teachers use different computer software during classroom activities. Teachers indicated PowerPoint presentation as the most useful in working with children. Much less teachers used computer games in their pedagogical work with children. Moreover no one of them used developmental games and games-experimentations. In the interview they marked difficulties they faced during planning such game-based activity, especially in the situation when game goals are not clear and there is a big possibility of unexpected results of the game.

Analyzing the teachers' questionnaires we concluded that three causes of avoiding computer games and other software are the most

popular in teachers' answers. First of all a number of kindergarten classrooms are not equipped with computers, so teachers have no experience in using computer games in education process. Secondly some of the teachers (21%) confessed very low level of computer literacy. Teachers from 45 to 55 years old predominated in this group of respondents. They marked problems of using internet services (54%), anxiety during computer usage (2%), limited computer skills by using MS Word (34%) or even inability to use the computer (10%). Also big percent of teachers (11%) felt lack of methodical guidance of using different computer games in education of preschool children.

Meanwhile the teachers who marked computer games in the list of software were involved in further diagnostic process and had to define criteria of choosing digital games for children. We used method of narrative interview to receive data on teachers' experience

Table 3. Reasons of avoiding computers by kindergarten teachers in their classroom activity

Reasons	Teachers (%)
Absence of computers in the classrooms	63%
Forbiddance of using computers in the classroom from the parents	0,5%
Forbiddance of using computers in the classroom from the kindergarten leaders	0,5%
Low level of computer literacy	21%
Absence of time	4%
Deficit of methodical information	11%

in using computer software in their work with preschoolers. Approximately 50 teachers were interviewed during 5 month. Such a qualitative method provided us opportunity to make a wide analysis of teachers' priorities in organizing children's education. There is an example of the interview with the teacher whose priority is speech therapy. "Due to curriculum limitation of time for using computer software in work with children till 5-10 minutes a day I personally use computer games only as one stage of a lesson. Using special computer software for speech correction "Igrly dlia Tigri (games for Little Tiger)" makes my lessons much interesting than before. These games are oriented to overcome children's speech problems. Comparing traditional language correction methodic with this software I find computer programs more effective and dynamic because of its interactive and game-based form of exercises. My computer literacy gives me possibility to make computer presentations for children's speech correction goals. In my presentations I use graphic, text, sound and video tools noticing on the one hand the increasing of demands to educational presentations and on the other hand the increasing of services for presentations creators. The advantage of presentation is in ease of making. I can scan pictures from the books or find images in internet and then just put them like slides in MS PowerPoint. So the information that I prepare for children becomes colorful and interesting. In my opinion bright visibility is the main factor for choosing any computer technologies because animation and moments of surprise make correction process expressive and interesting for children".

Analysis of teachers' interviews showed that all factors for choosing software indicated by teachers can be organized in a small list.

- 57% of teachers defined bright visibility of information as the main factor for choosing software;
- 23% examinees choose software guided by variety of learning tools;
- 10% are interested in cooperation skills development and are guided by the possi-

bilities of software in initiating of children's group work;

- 10% of teachers seek the compatibility of the software services with kindergarten curriculum aims.

The received results of the narrative interview showed the orientation of teachers on extrinsic side of organizing activity (90%) instead of intrinsic one based on play development. We could conclude rather low level of investigated teachers in using game-based software. This situation showed the importance of special guiding work to involve teachers in competent analysis and future using of computer software for children's game-based learning.

4.2. Discussion on Scaffolding Of Teachers' Choosing Computer Games for Children's Play Development

Further empirical study we organized in accordance with Epstein (1993) ideas, who identified four critical components of teachers' training: practical experience, workshops, models and mentors, and supervisory follow-up. The essence of experiment as a research method is in changing of one or several components of the object environment. The object of our research was not a person but the process of using computer games in kindergarten classroom activity. We implemented Epstein's model for the scaffolding program.

As the first step, teachers explored software that could be developmentally appropriate for their classrooms. During this first stage of the experiment that continued 3 month teachers had to review 2 popular computer games for preschool children as potential for classroom usage. We did not provide any criteria for reviewing and gave teachers opportunity to use their practical experience in creating the criteria on the one hand and on the other hand during this time teachers accumulate the new experience in games evaluation. Thus, this stage allowed all teachers in spite of their previous experience to summarize and structure their own ideas and

experience in the area of computer games for young children.

The second stage of the experiment included discussion on the potential learning objectives of the activities that teachers could use to integrate particular software in their classrooms. Teachers participated in workshops that integrated the developmental theory and research regarding computer use with hands-on experiences. During the seminars every teacher presented the experience on reviewing the games. The analysis of presentations showed the stable continuity of teachers' orientation on extrinsic side of games analysis (60%) instead of intrinsic one based on children's play development (40%). The list of reviewing criteria consisted of following statements:

- 40% of respondents marked the interesting plot of a game as the criteria for game evaluation;
- 35% used as the criteria the colorful of a game picture;
- 60% of teachers put on the first place the learning potential of a game: the mathematic skills development, language learning etc.
- 25% were oriented on the possibilities of several children's communication during evaluated games playing;
- 15% of teachers paid attention to possibilities of changing game components like plot, environment or game heroes according to children's imagination.

On the third stage of experiment we added the guidance service for teachers-participants of the research. We organized kindergarten teachers' learning community on the base of Volgograd Socio-Pedagogical University in the International Center for the Childhood and education to achieve the collective analysis of existing situation with game-based kindergarten learning. The community included more than 50 teachers. Teachers were divided into several work groups for working on creation the data for scaffolding of children's play development by using computer games. Each group should

continue analyzing previously chosen developmental computer games for 5-7 years old children. The groups were organized according to the working place of its participants. Each group presented one kindergarten and consisted of 5 teachers.

Before started the group work we organized a workshop where discussed with teachers the play theories and in brainstorming way teachers tried to formulate and then discuss the common list of principal ways in which computer games could influence children's psychological development. Aiming to help kindergarten teachers in games evaluation we made a table of helpful criteria for choosing developmentally appropriate games. Making the table we took in mind the main characteristics of play development: general characteristics of play, and theories of play (Table 4). The table had a mission to help teachers avoid the extrinsic approach to computer games choosing.

The teachers presented the results of collective research on monthly seminars and shared ideas in web activity on the internet page of the International Center for the Childhood and education. Each seminar topic concerned one play characteristic and corresponding criteria of computer games analysis. The groups were mixed and consisted of teachers who worked with computer software in their classrooms and who did not use any software before the experiment. The results of teachers' researching activity are presented below.

1. There is a difference between "real" games and computer games in visual separating the meaning of objects from their physical forms. For comparing play activity in real and virtual reality we used terms computer game and "real" game to underline the realistic or nonrealistic nature of actions. In computer games actions take place in imaginary reality but with real feelings of players. The oral speech loses the main role in creation and supporting of imaginary situation because every situation detail is seen on the screen. The potential of child's cognitive development could be

Table 4. *Criteria of choosing computer games for children*

Characteristics of play	Criteria for teachers	+/-
Play is a spontaneous, self-initiated and self-regulated activity.	Children freely engage in computer game. There is a freedom of choice inside the game.	
Play includes a dimension of pretend.	Children can create their own scenarios, rules and characters of the play. Children have opportunities to act in an imaginary situation.	
Play consolidates learning that has already taken place while allowing for the possibility of new learning in a relaxed atmosphere.	There is the potential of the game to develop children's new concepts and train new skills. The computer game allows the active participation of a child. There are possibilities to engage a child in problem-solving and self-discovery.	
In play children achieve a mental representation of social roles and the rules of society.	This computer game involves and develops the usage of symbolic meaning. This computer game provides children with an opportunity to act out and explore the roles and rules of functioning in adult society. This computer game allows for group work and collaboration.	

reduced also due to absence of symbolic substitutions necessity in most computer game programs. It occurs because technologies allow children to create any objects in virtual space of a game. These factors cause risks that play actions realized in computer games do not become generalized and minimized as they do in "real" games. To avoid these risks kindergarten teacher can organize special scaffolding of mental representations development by including speech actions (oral and written) on different computer game situations in classroom activities; also it can be helpful if teacher combines computer and real playing on one topic to create symbolic objects as substitutions of the real ones.

2. Analysis of computer software for children highlighted another difference of imaginary situations in "real" and computer games. The giant difference lies in nature of the situation. In computer games that we studied the situation was created by the game developers not by children. Children can play within the frameworks of created situation but cannot principally change it.

If they play social situation with computer as a partner they should follow computer guided program of relationships. It can significantly narrow down the developmental potential of playing activity. Scaffolding program can include group playing of one situation when children share their ideas on the scenario development, plan actions in cooperative way, and the most important continue the computer game scenario in "real" play where they are absolutely free in their imagination.

3. The stage of preliminary orientation in computer games acts not on the semantic level but on the level of actions. Awareness of the action mode before its starting is the feature of child-computer relationship. That is why knowing of the rule and actions modes should exist in child's mind before computer playing and scaffolding program should include preliminary discussion of future play rules, kinds of actions and modes of manipulating.
4. The main problem of using computer games for education goals lies in the plane of taking the role. In most computer games the

plot is defined externally. Therefore the roles are imposed with graphic images, actions modes even names. Sometimes the role prototype is not defined and should be created in playing process. In case of such “independent” existence of a role there are two variants of interrelation:

- a. Identification with a role, transferring the part of “I am” on the computer game hero and further playing in the form of the hero management.
 - b. Partnership with a game hero, cooperative playing with the new friend.
5. Computer technologies give opportunity for trying both types of interrelations with the game hero. For the first type the games should show the game situation directly “from the player’s eyes”. For the cooperative playing with game personage there are games where situations provide the view to the personage “from the outside”. It is evident that the second type of games should be chosen by teachers for education and development goals because appearing in the game of other person will enable children to develop coordination of their cognitive perspectives with their learning partners and teachers.

After cooperative analysis of the group research results teachers were involved in focus group interview. They discussed the new ideas they obtained during the experiment, assess the new experience and its future application in the classroom activity.

- 75% of teachers noticed the new skills in organizing integration between educational areas with the computer games tools;
- 16% of respondents were surprised by discovering of learning possibilities of computer games – journeys;
- 25% noted the importance of the scaffolding program designed to support the process of choosing and using computer games in kindergarten classroom activity.

- 78% of teachers marked the increasing of their activity in implementing computer games in kindergarten education practice.
- 68% of respondents noted the enhancement of classroom activities quality by guided implementing of computer games: increasing of children’s play plots, the enrichment of plays scenarios, the enhancement of children’s experimentation.
- 100% of teachers were satisfied with learning community working and underlined its impact into their professional development.

5. CONCLUSION

This paper discussed the problem of preschool children’s play development by using opportunities of computer games. Study of the play-based learning features in preschool age showed that play-based learning is a context for learning through which children organize and make sense of their social world, relate actively with people, objects and representations. The main idea of the paper is in understanding of a play as not a singular construct but rather a continuum of playful behaviors that children engage in the context of Early Childhood classrooms, encompassing a set of behaviors that vary in terms of the degree of adult guidance and support. Special scaffolding actions made by teachers are necessary due to crucial importance of children’s development outcomes obtained through game-based activity. Such outcomes include establishing of motives hierarchy, cognitive decentering, mental representations and others. To be a competent user of computer games developmental tools teachers need special scaffolding program which supports them on the way of realizing the developmentally appropriate education.

The research included several stages. On the first stage aimed to clarify the factors influencing teachers’ choices of computer games the questionnaire allowed to define that all the teachers’ factors are not oriented directly to development of children’s play activity. This fact determined the orientation for further

research work united more than fifty kindergarten teachers from Volgograd city. Next stages had experimental character and were associated with involving teachers to professional learning community for analyzing computer games for children. Teachers passed several steps from independent analysis of games to scaffold analysis oriented to the development of children's play activity. The results showed that teachers were in need of special scaffolding program. The essence of this program was in sequence of organized teachers activities: practical experience, workshops, models and mentors, and supervisory follow-up. The big role in this program played the professional learning communities of teachers provided the atmosphere of creation, exchange of experience and cooperation. After the experiment all teachers increased their computer literacy and acquired their own competent position on the question of using computer games with preschool children. Moreover, implementing the computer games to kindergarten classrooms in the framework of the experiment provided the improvement of the quality of children's education. Thus we can conclude that deliberate analysis of the play component of computer games made by kindergarten teachers can really provide the enhancement of classroom activities quality by the developmentally appropriate choices of computer games.

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