

IMPROVING TEACHING AND LEARNING IN PHYSICAL EDUCATION: USING A DEVELOPMENTAL CONTINUUM AND ELIMINATING TRADITIONAL GRADING

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Abstract: Assessment methods and the ownership of learning in Physical Education remain, in most cases, as highly traditional practices which do not fully allow students to be active and enthusiastic participants in the process of learning physical skills and health related knowledge. This study focuses on the improvements of student accountability and ownership for learning in Physical Education classes when traditional grading is removed and a year-level-only curriculum is replaced with a developmental learning continuum. The context of this study is to identify the relationship between student motivation, interest in learning, and the accountability to reach set goals when grade rewards are replaced with clear descriptions of student performance and development along a schema of skills and knowledge in PE. The research of our project will determine that the modifications made to the process of teaching and learning has improved the learning experience of our test subjects. The study has proven that when traditional grading is removed and students have the opportunity for true differentiated learning, they demonstrate far more intrinsic motivation in their learning. The students have taken greater ownership over their development and have become more accountable for their own process of learning. To truly unlock the potential of each child, we educators need to support our students to be risk takers who are inquiring and reflective.

Keywords: developmental continuum, grading, ownership, accountability, physical education

INTRODUCTION

Assessment methods in physical education and in schools in general are entrenched in old philosophies and deep-rooted practices that have endured despite numerous movements of pedagogical change and call for reform (Anderson, 1998). Yet, teaching and learning have come far over time. In those rare progressive learning environments, the emphasis has shifted from rote memorization of facts and skill-drilling to student-centered environments which emphasize the whole-child and active learning (Kohn, 2008). With the above in mind, a greater focus on student accountability, learning ownership and individualized assessment methods, can occur. What has not changed is the use of “grading-systems” as rewards and motivators used to communicate performance feedback to students (Lowman, 1990). There is a belief within the academic world that grades should be done away with altogether (Miller, 2013). Part of this is due to the growing concern over the quality of assessments in schools (Zhang & Burry-Stock, 2003). As a result – some have turned to standards-based assessment which emphasizes that assessment methods and reporting are reliable; valid; inform performance; and guide teaching and learning (Hardegree, 2012).

As one researches a growing trend that is standards-based grading, it becomes apparent that a new paradigm shift is needed in physical education, one which would be the answer to the un-evolved nature of student performance assessments (Melograno, 2007). It also cannot be forgotten that grades should clearly reflect student achievement and performance of a culmination of work (O’Connor, 2007). Therefore, we would submit that the ideologies of assessment are at cross-roads. Nevertheless, un-informing methods of grading persist in schools and do little to indicate the connection between learning (skills/knowledge), the curricular goals (standards), and student feedback. Scriffiny (2008) confesses that when she was challenged to explain the qualitative difference between the letter grades (A-F), her answers were vague, unclear, and superficial. So remains a status quo that unfortunately emphasizes:

- grading as a rating/ranking system for parents and universities;
- the use extra-credit work or homework;
- a blurred connection between curricular goals with learning and student feedback;

- a de-valuing of student goal-setting and reflection;
- a reliance on old philosophies of student motivation and reward.

It is time for change, one class, one grade, and one school at a time. There is not a better place to begin the change, than in a performance-based discipline, such as physical education. This study will look to challenge the above points so that student feedback engages students in their learning.

METHOD – PROJECT IMPLEMENTATION

We began the pilot program by introducing the standards-based curriculum document and assessment methods into Grades 4-7 of our teaching responsibilities last school year. The process of execution occurred in the following steps:

1. We started by informing the parents and students of Grade 4-7 that they would be participating in a pilot project that featured standards-based assessment and learning. This occurred during the parent information evening during the first week of school. The students were then presented with their developmental continuum and were given online access (shared through Google Docs) to the necessary indicators. By creating a weighted equation, we ensured all stakeholders that it will still be possible to discern a number grade from a fully plotted schema. However, at no time, was this requested by any student.

2. Using the developmental standards schema, we placed each of our students on the continuum over the course of the first and second months of school. This occurred by using the indicators as performance exemplars while carrying out formative assessments. It should be noted that our project focused predominantly on formative assessments, goal setting and student reflection. The key to our new process is that students can move along their personalized continuum as they meet the expectations of a particular outcome.

3. As we prepared for our first parent conference, the students in the test group were required to choose one goal (outcome) that they would work towards. Each student needed to fill out a goal form, make a plan and describe the steps that they would take to accomplish the goal. For the first time at our school, students began to prepare to lead the upcoming conferences by presented to their parents their personal continuum document as well as their goals, successes, and areas for improvement.

4. In preparation for the reporting period in January, the students prepared a reflection or audio podcast which outlined the progress of their goal. Rather than receiving a number grade for the class, they met again with their teacher during the student led conference. Each student led the conference and presented their progress and shared their reflections related to their goal.

5. Within a week after of the grading period, the student met again with their teacher to choose a new goal or to identify the means to accomplish their previously chosen one.

6. A final reporting conference took place at the beginning of June with the teacher, student, and parent. Here a short review of the student's progress occurred as well as a presentation, by the student, on his/her developments.

7. Before the student left the school for summer break, they discussed with their teacher their developments along the continuum during the year and where they would be starting after the summer holiday, so as to emphasize that learning had not ended at the conclusion of the calendar school year. Also, they were asked how they wanted to work on their goal over the summer. No documentation was required for any summer work.

8. It was essential for the project team to reflect on the project and plan for further implementation in the upcoming school year. Feedback was collected from the students, project members and the parents. Responses from questionnaires and interviews were overwhelmingly positive in favor of the pilot program.

OVERVIEW

All student grading has been done by using the new physical education continuum accompanied with the indicators of success (see Figure 1). Each student was placed on a working target for each of the 13 physical and personal developmental selectors (skills and knowledge standards). The following chart shows how a student could be placed on the Developmental Schema.

Figure 1. Assessment Overview

Phase 1		Age Level		Phase 3
		•		
		•		
		•		
		•		
		•		
		•		
		•		
		•		
		•		
		•		
		•		
		•		
		•		
		•		

	Achieved objective
	In progress

However, the standards placement can move horizontally and vertically along the continuum. In other words, a particular student might be placed with skills or knowledge in multiple grade levels, ultimately removing the importance or need for number grades. For example, a student might be an age-group higher in Dynamic Movements, but an age-group lower in Teamwork. In Tables 1-6 are shown some examples of student placement (without outcome descriptions).

Table 1. Operating far above grade level = 7 (on scale 1-7, where 7 is the best grade)

Physical Education: Phase 3 (Grades 6-8)		
Physical Development		
Stage 1: Skills/Knowledge	Stage 2: Skills/Knowledge	Stage 3: Skills/Knowledge
3.1.1	3.2.1	3.3.1
3.1.2	3.2.2	3.3.2
3.1.3	3.2.3	3.3.3
3.1.4	3.2.4	3.3.4

Table 2. Operating above grade level = 6 (on scale 1-7, where 7 is the best grade)

Physical Education: Phase 3 (Grades 6-8)		
Personal Development		
Stage 1: Skills/Knowledge	Stage 2: Skills/Knowledge	Stage 3: Skills/Knowledge
3.1.1	3.2.1	3.3.1
3.1.2	3.2.2	3.3.2
3.1.3	3.2.3	3.3.3
3.1.4	3.2.4	3.3.4

Table 3. Operating slightly above grade level = 5 (on scale 1-7, where 7 is the best grade)

Physical Education: Phase 3 (Grades 6-8)		
Skill Development		
Stage 1: Skills/Knowledge	Stage 2: Skills/Knowledge	Stage 3: Skills/Knowledge
3.1.1	3.2.1	3.3.1
3.1.2	3.2.2	3.3.2
3.1.3	3.2.3	3.3.3
3.1.4	3.2.4	3.3.4

Table 4. Operating at grade level (best fit) = 4 (on scale 1-7, where 7 is the best grade)

Physical Education: Phase 3 (Grades 6-8)		
Behavioral Development		
Stage 1: Skills/Knowledge	Stage 2: Skills/Knowledge	Stage 3: Skills/Knowledge
3.1.1	3.2.1	3.3.1
3.1.2	3.2.2	3.3.2
3.1.3	3.2.3	3.3.3
3.1.4	3.2.4	3.3.4

Table 5. Operating below grade level = 3 (on scale 1-7, where 7 is the best grade)

Physical Education: Phase 3 (Grades 6-8)		
Personal Development		
Stage 1: Skills/Knowledge	Stage 2: Skills/Knowledge	Stage 3: Skills/Knowledge
3.1.1	3.2.1	3.3.1
3.1.2	3.2.2	3.3.2
3.1.3	3.2.3	3.3.3
3.1.4	3.2.4	3.3.4

Table 6. Operating far below grade level = 6 (on scale 1-7, where 7 is the best grade)

Physical Education: Phase 3 (Grades 6-8)		
Physical Development		
Stage 1: Skills/Knowledge	Stage 2: Skills/Knowledge	Stage 3: Skills/Knowledge
3.1.1	3.2.1	3.3.1
3.1.2	3.2.2	3.3.2
3.1.3	3.2.3	3.3.3
3.1.4	3.2.4	3.3.4

While there has been some resistance to this change from some PE staff members, we strongly believe that the new teaching and learning process in our department greatly improves student motivation, ownership of learning, and reflective knowledge. To help reduce the trepidation of such a significant change, we have held professional development sessions to all PE staff and have lowered the initial requirements to “place” and assess students on the developmental continuum. So far this school year, our department is using the developmental continuum, as well as no grading, across all levels.

We have offered a plan of action to increase the amount of other disciplines that could participate in this shift to standards-based assessment. The Drama Department has already voiced interest in joining this shift in paradigm as well as Humanities which has implemented a developmental continuum this year. Yet, the PE department remains the only discipline so far that has removed traditional form of grading. It should be emphasized that while this project has been incredibly successful, this is not a simple and easy remedy to improve teaching and learning. To effectively implement our model of teaching and learning, there is a large amount of required curriculum writing to organize standards and indicators so that they have vertical and horizontal alignment. We have simplified and reworked a process of implementation offered by Marzano (1996).

OUTCOMES

From our project we collected qualitative data from over 320 students ranged in age from 9-13 years of age. Only a very small percentage of these students (1%) felt that they preferred to receive “grades”. It is interesting to note that all of these students were those that were very high achievers in physical education and were used to receiving “top grades”. Yet, all students found much greater intrinsic motivation from having clear developmental goals and receiving effective feedback on their learning.

Using this new system of assessment and feedback our students have become accountable and individually aware of their performance levels and the specific goal (standard) that is the focus of any assessment or lesson activity. Further, the assessments, which are often performance videos, clearly demonstrate if a student has reached the goal expectations of performance exemplars. The highlight of these innovations is that all students have been allowed to actively move along their own personal developmental continuum. This standards schema has allowed each student to access outcomes from stages that are parallel to their age group. This means that true individualized assessment occurred in our project lessons and that the administrative use of grading had become obsolete and completely unnecessary. The students that have participated in our project did not ask for performance grades or need them for motivation. Rather, they found a genuine interest in developing their abilities and matching their skills to exemplars provided by other students who demonstrated high-level performance.

Yet, the amount of effort it has required for the PE Department staff to “place” students on their individual continuum has caused some logistical challenges. Additionally, new participants were not used to the idea of being responsible for formative assessments of individual students at all times. But moving away from traditional norms of pedagogy and embracing full-scale change is never easy. Teachers are now required to constantly make anecdotal observations of their students’ progress while referring to individual electronic schema documents.

Individualized developmental continuum documents have clearly given formative observations, more value, greater validity, and stronger reliability in relation to the learning outcomes. Importantly, our study has proven that when traditional grading is removed and students have the opportunity for true differentiated learning – via the developmental continuum – they demonstrate far more intrinsic motivation in their learning. The students have taken greater ownership over their development and have become more accountable for their own process of learning. All of these changes in teaching and learning have occurred while retaining a dynamic classroom where students are engaged, active, and having fun.

DISCUSSION

Current assessment and reporting practices, in regard to old philosophies and traditions, bring up serious questions about the authentic value learning and assessments are in PE classes (Melograno, 2007). Opportunities that offer authentic learning experiences for students ensure a positive “effect” in their thinking and perceptions of their own learning. A simple way to describe effective constructive learning opportunities are those that emphasize investigation and curiosity, yet do not punish students for taking risks or failing. Being unaware of learning tasks and unable to reflect on specific learning goals, a learner can acquire feelings of confusion, stress, dispiritedness and frustration (Kort & Reilly, n.d.). A concrete connection between assessments and learning goals is not reflected in reward systems that are vague and limited in meaning. Marzano, Pickering, and Pollock (2001) believe that it is crucial for students to do work that has closely linked curriculum objectives so that they can make connections between the assessments, the course work, and the learning standards.

It appears, from our research, that offering rewards does not inspire learners to take risks, investigate solutions, and be intrinsically motivated in their own goal-setting. Pink (2009) performed human research to identify the connection between rewards and motivation. He found that there was largely a negative connection between rewards as motivators. While his study is more focused on business, there is a human truth to his findings. If we make a parallel between the monetary rewards of business to the informing rewards (letter or number grades) in schools, it could be suggested that, at a human level, these reward systems are similar. Based on all that we have stated above, how can the expectations of a school’s mission and vision be met while the assessment continues to implement evaluation methods that are non-standardized, vague, outdated, uninspiring, and misinforming? The simple answer is: they cannot. This has led to our study which, in our belief, provides an effective innovation in assessment methods. It offers greater ownership to the students in their learning, while presenting opportunities for goal-based reflection and real

understandings of individual developmental success (Hardegree, 2012). In practical terms, our project is the abolishment of assessment rewards that rank student achievement – in relation to learning standards – on a linear scale. No more A's, B's, C's, percentages, or numbers. We have eliminated ad-hoc physical activities that fill time and have done away with reward-based reporting methods that communicate (or miscommunicate!) student rankings.

While this project, at first thought, seems like an overwhelming and potentially impossible undertaking, it is not so complex. No matter how strong a school's reluctance and resistance to this project might be, the status quo simply does not equate to the expectations of progressive pedagogy. And while we, as educators, further pull old beliefs and doctrines along with us, we fail to be innovative in our pedagogy and ultimately, fail to do what schools should: develop inquisitive learners that are reflective, independent, and self-motivated.

So, how do we change our thinking about something that is so deeply ingrained in our education systems? The answer is simpler than one might have thought. If we assume that our teaching is authentic and all activities and assessments are driven by the curriculum outcomes and standards then this process of innovation is nearly complete. We simply need to leave out the final step, the granting of penalties and rewards. Thus, this is what we have undertaken during our project. We facilitate a process of goal-setting and reflection in terms of personalized learning standards on a developmental continuum. We are able to do this because we have implemented new curricula that have clear learning outcomes which are used individually for each student. These can stand alone as indicators of skill or knowledge development. When planning or creating assignments, we re-shape the assessments so that they clearly indicate either, yes, the student has demonstrated the ability to perform the given task, or no, there remains areas for needed growth. For our project we have done away with the "shades of gray", the mysterious numbers which represent performance, that blur the clarity of a student's understanding for their own learning and achievement.

Airasian (1994) suggest that heads of school and principals will fret over this change because, administratively, schools need letter and number grades to inform about student rankings, graduation standing, and appropriateness for promotion to the next grade level. We would question how the above idea justifies using a negatively reinforcing means (grades) to motivate student learning. Let the external exams inform the parents about which university their child will enroll. Allow the students to move along their schema at their own pace. Give the teachers the ability to motivate students with success rather than punishing them with normed comparisons. The idea is not so "out of the box". There is a growing following of standards-based assessment that is gaining steam. Educators are becoming more aware that this rewards system need to change. Yet, they are also aware of the depth at which grading has rooted itself into universities, public school curricula and teaching practice. Parents will want the numbers because they grew up with them. They will also want them so they can compare their children with their neighbor's children. Teachers will resist because of the effectiveness of grading on student motivation.

CONCLUSION – MOVING FORWARD

It would be a challenge to find many teachers who do not want the best for their students. That being said, the most effective (and obvious) way to recruit believers for this innovation is by reminding about the "Why" of learning in schools. We have opened up discussions to our staff and other teachers about grading and have shared our research findings on current innovations in assessment. We have spoken about how traditional forms of pedagogy use grades as rewards and how the status quo devalues the ownership and accountability of student learning. As Lund (1992) suggests, "Assessment and accountability need to be applied to the instructional task system as part of an effective physical education program". We have done this delicately, as our school (and many others) is entrenched in the use of grading and the overvaluing of collected data from internal assessments. Questioning the validity of these practices offended some and even angered others, as it has brought up questions about the effectiveness of their teaching practice. However, there is a "fail-safe mechanism" built into this assessment model. Specifically, that if a number grade is required, it can be easily and more accurately discerned from each student's developmental continuum. And ultimately, our findings have shown that students are more involved, engaged, and satisfied with the processes of our pilot project.

This innovation has offered teachers a more authentic way of evaluating and motivating students. By implementing this ourselves, we have been able to demonstrate the program "in action", which has alleviated some initial resistance from the pundits. The culture of assessment overall, needs to change. Motivating learning through grading adds fear, stress, and reluctance to the learner. To truly unlock the potential of each child, we educators need to

support our students to be risk takers who are inquiring and reflective. Punitive rewards do serve an administrative purpose: to rank students within their year-group, supply parents (and students) with basic feedback, as well as placing students into various learning environments. However, a standards-based assessment can supply number grades if needed as well as provide an authentic and meaningful learning experience for the students. The status quo of grading does not clearly indicate a student's specific achievement in relation to the curriculum standards. Most importantly, they de-motivate students while instilling negative connotations to learning. It is time for a paradigm shift. Still, we do not propose change overnight, rather, with commitment, persistence, and a significant amount of work.

Authorship statement

The authors have contributed equally.

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Appendix A

Indicators of Success – descriptions of skill/knowledge development

Indicators of Success:

Phase 3 – Stage 1 – Physical Development

3.1.2 repeat learned dynamic movement skills to improve movement patterns

Indication of Benchmark Achievement

The student is able to...

- a. detect and analyze errors in dynamic movement skills**
- b. work independently or with a partner to practice specific dynamic movement skills over a period of time to improve performance**

Learning/Teaching Advice:

- Dynamic skills include: body roll; shoulder roll; gallop; slide; leap; ready position; running; running jump; skipping; travelling hop; two-foot stop; walk
- striking an object, kicking an object, capturing an object, dodging, jumping, using a manipulative object, and running

- The activity can be a game, an invented game or a team relay.
- striking skills used in pickleball, baseball, hockey, golf, tennis; serving used in badminton, tennis, volleyball, table tennis
- The teacher should introduce a new activity or game which requires the students to use a variety of previously learned movement skills.
- The teacher should give opportunities for the students to discuss the learned movements that will be needed to successfully complete the activity.
- The student should have an opportunity to freely explore a variety of movement options for the tasks of the activity.
- The teacher should give the students an opportunity to discuss the connections to prior learning.
- The student can be reminded to concentrate on each individual movement as they participate in the activity.

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UNAPREĐENJE PROCESA NASTAVE I UČENJA U FIZIČKOM VASPITANJU: UPOTREBA RAZVOJNOG KONTINUUMA I ELIMINISANJE TRADICIONALNOG OCJENJIVANJA

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Sažetak: Metode provjere znanja i sposobnosti u fizičkom vaspitanju, kao i sam odnos prema učenju, su u većini slučajeva još uvek vjerni tradiciji, čime se učenicima ne dozvoljava da budu potpuni, aktivni učesnici entuzijasti u procesu usvajanja fizičkih sposobnosti i zdravstveno-relevantnog znanja. Ovo istraživanje ispituje efekte ukidanja tradicionalnih ocjena i nastavnog plana i programa strukturiranog po razredima, te uvođenje razvojnog kontinuuma, a sa težnjom ka potencijalnom pospješenu odgovornosti učenika u odnosu na vlastito učenje u nastavi fizičkog vaspitanja. Cilj istraživanja je da se identifikuje odnos između motivacije učenika, njihovog interesovanja za sam proces učenja, kao i odgovornosti za ostvarivanje vlastitih ciljeva u oblasti fizičkog vaspitanja, a u situaciji kada su ocjene zamijenjene jasnim opisima učeničke performanse i razvoja na šemi znanja i sposobnosti. Istraživanje je pokazalo da su sprovedene modifikacije u nastavnom procesu poboljšale vlastita iskustva ispitanika vezana za usvajanje relevantnih znanja i sposobnosti. Ukidanjem tradicionalnih ocjena i pružanjem mogućnosti za diferencirano učenje je utvrđeno da učenici pokazuju veće interesovanje i motivaciju za učenje. Rezultati istraživanja takođe pokazuju da su učenici preuzeli veću odgovornost i vlasništvo nad vlastitim procesom učenja, te se stoga – a u cilju istinskog razotkrivanja individualnih potencijala – preporučuje podsticanje učenika ka preuzimanju rizika, te podrška pri ispoljavanju i uticaj na razvoj radoznalosti, odgovornosti i interesovanja uopšte.

Ključne riječi: razvojni kontinuum, ocjenjivanje, svojina, odgovornost, fizičko vaspitanje.