CAN MASTERY AND PERFORMANCE GOALS PREDICT LEARNING FLOW AMONG SECONDARY SCHOOL STUDENTS?

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Abstract

This study investigated the ability of a motivation construct, learning goals to predict flow among high school students. Learning goals and their influences on learning and performance have been researched extensively, but how much can both mastery and performance goals predict students' engagement in general learning activities is still not well documented. A total of 94 high school students aged sixteen were given questionnaires that measure their experience of flow as well as learning goals as they engage in learning activities in preparation for a major examination. Standard multiple regression analysis found the model (mastery and performance goals) explains 51% of the variance in flow. Further analysis found that of the two goals, mastery goal makes the strongest significant contribution to explaining flow, whereas performance goal was not a significant predictor of flow. The results are discussed in terms of promoting mastery goal as the main ingredient for students to become engage in their learning tasks. Nevertheless, the beneficial role of performance goal is still not rejected.

INTRODUCTION

Many studies have established the positive relationship between flow and improved learning in adolescents, young adults (Rathunde, 2003) and high school students (Shernoff et al. 2003). Flow is a state of engagement that individuals get into when they are interested in and enjoy a task so much that they become engrossed and immersed in what they are doing (Meyer and Turner, 2006). Learning activities for school adolescents involve school-related work such as studying for an examination, doing revision, and completing homework. Students are always told to get focused and concentrate on their learning activities, but do they really become engaged so that they gain more benefit out of their learning time which can then be reflected in a good academic performance?

Research has found relations between flow and students' perceived learning of the subject matter, students' perceived skill development, and student satisfaction (Rossin et al. 2009). Flow was found to mediate between academic work and psychological well-being (Steele & Fullagar, 2009). Compared to average students, high-ability students reported the highest flow states when engaged in their favorite subjects (Borovay, 2007).

A question that follows: what are the necessary requirements for students to become engaged in their learning tasks? Since motivation has been identified as among the most powerful determinants of students' success or failure in school (Hidi & Harackiewicz, 2000), it is possible that motivation becomes the inner drive that promotes students to become engaged in their learning tasks. Investigations on the relations between motivation and flow have established that motivation is a major ingredient to the experience of flow. In fact, Csikszentmihalyi (1975) had suggested that an important condition of flow is motivation. When a person becomes motivated to enjoy a task, it is easier to become engrossed. It was found that people with high motivation tend to experience high level of flow (Fullagar & Mills, 2008; Csikszentmihalyi & LeFevre, 1989; Kowal & Fortier, 1999).

Flow Theory

Flow theory was founded by Mihaly Csikszentmihalyi (1990) who became interested in finding why or how some people become engrossed in doing what they do. He believed that people are most happy when they are in a state of flow, which he described as a state of concentration or complete absorption with the activity one is doing. The flow state is an optimal state influenced by one's intrinsic motivation, where the person is fully immersed in what he or she is doing. This is a feeling everyone has at times, characterized by a feeling of great freedom, enjoyment, fulfillment, and skill—and during which basic needs such as time, food or ego-self are typically ignored. Flow theory does not apply only to academic or professional activities. Any activity that one enjoys doing, such as cooking, sewing, writing or sports can become a source of self-fulfillment.

Students who experienced flow are totally absorbed in an activity or set of activities (Demerouti, 2006; Meyer and Turner, 2006). The flow state is intrinsically motivating in that students engage in the learning activities for their own sake rather than for an external consequence (Ryan & Deci, 2000). It can safely be assumed that students with high motivation can also experience a high level of flow when doing their school work.

Flow in this study refers to a state of absorption when students are interested in, enjoy, and engage in their learning tasks. A state of flow is achieved when students reach deep absorption in an activity that is pleasurable, challenging, and worthy of doing for its own sake. Concentration, interest, and enjoyment occur simultaneously during the flow experience (Demerouti, 2006). The flow state is intrinsically motivating in that students engage in the learning activities for their own sake rather than for an external consequence (Ryan & Deci, 2000). The level of flow that students have when engaging in learning tasks can be measured in the nine traits of flow as proposed by Csikszentmihalyi: (1) perceived balanced between skill and challenge (2) clear goals, (3) high concentration, (4) loss in self-absorption, (5) distorted sense of time, (6) desire for direct and immediate feedback balance between ability level and challenge, (7) sense of personal control over the situation or activity, (8) finding the activity as intrinsically rewarding, and (9) becoming highly absorbed in their activity (Jackson, 1996; Smith, 2005; Borovay, 2007).

Learning Goals

Learning goal orientation refers to students' reasons or purposes for engaging in their learning behavior. The goal orientations measured in this study are mastery or performance goal. Mastery goal assess the extent to which students' do their work in order to develop their competence. Performance-approach is the extent to which students do their work to demonstrate their competence relative to other students in the class or in school. Students with mastery goal orientation have a desire to develop competence, increase knowledge and understanding through putting efforts during learning. On the other hand, students with performance goal orientation prefer to get favorable judgments towards one's competence through good grades and social acknowledgement (Smith, Duda, Allen, & Hall, 2002).

Many studies have delineated the positive learner characteristics associated with the mastery goal. (Church, Elliot, & Gable, 2001; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002). Mastery-oriented students tended to place high intrinsic value on learning and were inclined to use deep information processing strategies. They were apt to be self-regulated, using self, monitoring and organizational strategies, as well as adaptive to failures on particular tasks. Students with mastery goals will want to develop new skills, try to understand their lessons, improve their level of competence, and achieve a sense of mastery based on self-referenced standards. Students who pursue mastery goals want to acquire new skills and improve their competence. Students with mastery goals are found to feel higher sense of belonging in school, adhere to social norms and rules, want to be accepted by peers, and try to achieve social status.

Students with performance goals tend to focus on ability and self-worth, try to outperform others, and want to receive public recognition for their superior performance. Those who adopt performance goals want to show that they have good ability and avoid signs of failure as well as outdo other students (Smith, Duda, Allen, & Hall, 2002). It maybe plausible to suggest that having performance goal orientation is not counterproductive since it makes students focus on the learning product or outcome measure that compare their ability relative to their peers. Performance-approach oriented students looked to gain positive judgments of their competence in relation to other people, whereas performance-avoidance goal oriented students sought to avoid negative judgments of their competence in relation to other people. Their chief concern is getting a better score or grade than other students in their class. Performance-oriented students want to be seen as being at the top of the class, or, just as importantly, not seen as being at the bottom (Pintrich, 2000).

Purpose of the Study

Since the proponent of flow theory has suggested that motivation is a condition for achieving the flow state, this study seeks to identify relevant motivational constructs that can contribute to flow. In particular, research on the learning goals provide strong support that the purposes for students to engage in learning tasks may be one of the answers. Whether students study because they want to master the materials, or because they want to do well in their tests, both are good motivational drive to become engaged in studying. Studies on flow have focused on foreign language studies (Egbert, 2003), music education (Custodero, 2002), sports (Jackson, 2008); education for the gifted (Rea, 2000), and instructional design using hypermedia (Konradt, Filip, and Hoffman, 2003). There is a lack of investigation on the experience of flow in general learning tasks. Regardless of the subjects they are revising, or doing homework, or reading, students need to stay focused, interested and absorbed in order to get most out of their learning time.

When students enjoy their learning tasks, they will find it easier to concentrate. In addition, much of the research on flow theory has been conducted with talented teenagers and individuals in their talent areas (Schweinle, Turner, and Meyer, 2006). Results might have differed for students and individuals who are more typical or average. More studies need to be done using average samples and average students to see whether average individuals are also able to achieve a flow state of experiences. In view of the above reasons, the following research questions were addressed: 1) To what extent do mastery and performance goal predict flow in learning activities among normal school students? How much variance in flow can be explained by the two types of goals? 2) Which variable in the model is the best predictor of flow?

METHODOLOGY

Participants

This study reports a preliminary data analysis findings based on 94 adolescents. They were six-teen year old students attending two different high schools in the state of Selangor, Malaysia consisting of 38 males and 56 females. The sample was conveniently selected from several intact classes for the purpose of pilot study.

Instruments

The items in the Flow Scale and Learning Goal Scale were constructed based on literature search on the concepts and constructs of each theory. Students rated each item on a five-point scale ranging from 1 (very untrue of me) to 5 (very true of me). Items were in the national language and were designed using simple terms to match the level of targeted respondents. After referencing with the constructs and definitions found abundant in the literature, the final items were also validated by local experts in the field of educational psychology to ensure that the items measure what they are supposed to measure and are suitable for high school students.

The Learning Goal Scale consists of 16 items to measure students' reasons or purposes for engaging in their learning behavior. There are two main constructs assessed: mastery goal and performance goal. Items designed to measure mastery goal assess the extent to which students' do their work in order to develop their competence. Performance-approach will assess the extent to which students do their work to demonstrate their competence relative to other students in the class or in school (Smith, Duda, Allen, & Hall, 2002; Church, Elliot, & Gable, 2001; Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002). A composite score for internal consistency was calculated where Cronbach alpha coefficient is .835.

The Flow Scale consists of a total of 26 items to measure the nine constructs of flow. Being in flow means the students are able to formulate clear goals, high concentration, loss of the feeling of self-consciousness, distorted sense of time, ability level balanced with challenge, effortlessness of action, become absorbed in activity, and direct and immediate feedback (Csikszentmihalyi & LeFevre, 1989; Demerouti, 2006; Schaufeli, Salanova, González-Romá, & Bakker, 2002). Each constructs were measured by three items, but factor analysis processes resulted in one of the item being deleted. A composite score for internal consistency was calculated where Cronbach alpha coefficient is .915.

Procedures

Students were conveniently chosen by the school teachers after approval was obtained to conduct the study. Students were gathered in a small hall. Students were briefed on the purpose of the pilot study and were assured of confidentiality. They were also told to answer honestly as there is no right or wrong answer. Majority of the students took about 30 – 45 minutes to complete the questionnaire.

RESULTS

This study investigated the ability of learning goals to predict flow among high school students. The intention was to determine the extent to which mastery and performance goal can predict flow in learning activities among normal school students. If learning goals can predict flow, how much variance in flow can be explained by the two types of goals? Finally, of the two types of goals, which one is the best predictor of flow?

The Flow Scale consists of 26 items while the Learning Goal scale consists of two subscales with each having 8 items. Students' responses were summed to get a composite score. Means and standard deviations for the three scales are shown in Table 1. Simple correlation analysis indicates that flow is positively related to mastery goal (r=.706) and performance goal (r=.332), although the first relationship is stronger than the second. Both relationships are significant at 0.01 level (2-tailed). In addition, mastery and performance goal is significantly and positively related with each other (r=.30). Both of the scales correlate substantially with flow, thus permitting regression analysis to be conducted (Tabachnick and Fidell, 2001).

Table 1: Means, Standard Deviations, and Correlations among Flow, Mastery and Performance Goals

Scales	M	SD	mastery	performance
Flow	3.51	.53	.706**	.332**
mastery	4.02	.52		.300**
performance	3.53	.68		

**significant at 0.01 level (2-tailed).

In order to answer the research questions in this study, a standard regression analysis was conducted with flow as the dependent variable, and the two goals as independent variable. Several important statistics were evaluated first to check that the assumptions of multiple regression were met (Tabachnick and Fidell, 2001). The sample size of 94 is adequate following the recommended formula of N> 50+8m (where m = number of independent variables). Thus for this study which has two independent variables, the required cases is 50 + 8(2) = 66. Problems with multicollinearity are not evident. The independent variables (mastery and performance goals) showed reasonable relationships with the dependent variable (preferably above .3 as recommended), and at the same time the correlation between independent variables is not above .70. Collinearity diagnostics produced a Tolerance value of .923 which is not less than .10 and the VIF value of 1.08, well below the cut-off point of 10. Analysis of scatterplot, Mahalanobis distance and casewise diagnostic suggest no outliers and no major deviations from normality. Therefore, it can be safely concluded that the assumptions of multiple regression are not violated.

To evaluate the model, R square tells how much of the variance in the dependent variable (flow) is explained by the model (mastery and performance goals). The result in Table 2 shows R Square value to be .519, which means that the model (mastery and performance goals) explains 52% of the variance in flow. The adjusted R square which provides a better estimate of the true population value when the sample is small shows a value of .508, which is not too far off from the R square value. To assess the statistical significance of the result, ANOVA results reveals that the model is significant indeed (F=49.003, df = 2, 91, sig = .00).

Table 2: Evaluating the Model of Flow with Learning Goals as Predictors

R	R Square	Adjusted R Square	F	df	sig
.720	.519	.508	49.003	2, 91	.000

To determine which of the two goal orientations contribute to the prediction of flow, the standardized coefficients of Beta shows the largest beta coefficient is .665 for mastery goal. This means that mastery goal makes the strongest unique contribution to explaining the dependent variable flow, when the variance explained by all other variable in the model is controlled for. The results as shown in Table 3 reveal that consistent with the many findings, mastery goal was found to be a significantly strong positive predictor for flow (B=.665, p < .001). Performance goal was not a significant predictor of flow.

Table3: Evaluating the independent variables' contribution to flow

	B	t	sig
mastery	.665	8.79	.000
performance	.148	1.95	.054

In short, the results presented above provide the answer to the three research questions. For research question 1, the model which includes mastery goal and performance goal, explains 51% of the variance in flow. To answer research question 2, between the two independent variables, mastery goal makes the largest unique and significant contribution to flow (beta = . 665) whereas performance goal does not contribute at all (beta = .148).

DISCUSSION

The results suggest that learning goals can influence students' flow in learning activities. In other words, when students are motivated with wanting to learn because they want to master the materials or perform their best in quizzes, tests or assignments, they can easily get into the state of high concentration, engagement and enjoyment. This finding is encouraging for teachers, parents and students since an ingredient to flow has been found. The adults can emphasize to students the significant roles of the two types of goals, especially mastery goal in helping students to better concentrate on their studies. Being motivated alone is not enough. Students must be able to sit down, focus and engage in their learning tasks in order to remember better, learn faster, and understand well.

Brophy (1988) posited that when students are motivated to learn, they get involved in learning behaviors that they find meaningful and worthwhile and from which they foresee academic benefits.

Students who pursue mastery goals want to acquire new skills, improve their competence, increase knowledge and understanding through putting efforts during learning. This kind of intrinsic motivation will surely brings tremendous advantage to high school students who want to improve their performance. The characteristics associated with mastery goal are not far off from those characteristics attached to the state of flow. Csikszentmihalyi (1975) suggested that optimal learning experiences are intrinsically motivated and related to positive emotions and enhanced cognitive processing. In other words, learning occurs only when an individual is cognitively and emotionally engaged. A flow state can be achieved mainly when a person is interested in the task or activity he or she is doing. If the person dislikes an activity, it will be difficult for him or her to enjoy it. When one does not enjoy a task, one cannot concentrate. In the end, one will not become engaged in the task (Johnson, 2008).

Although this study did not find performance goal to be a significant predictor to flow, the role of this orientation cannot be denied. Especially for high school students whose exam scores, tests results and grades are encouraged, performance orientation cannot be deemphasized. Performance motivation orientates students toward demonstrating their competence, competing with others, and gaining favorable social judgments (Smith, Duda, Allen, & Hall, 2002; Midgley et. al, 1998). Students with performance goals are concerned with looking good, smart, or capable to others. Performance goals can be promoted in the classroom environment when success is defined by high grades, value is given to high ability, and attention and rewards are given to student performance relative to others (Ames & Archer, 1988). Although the trend is to emphasize on holistic development of the person, it cannot be denied that grades and achievement are still sought after as an indicator of student success.

Limitations

It is important to note that the present findings are based on a preliminary data and research work on the role of motivations in predicting flow. The small number of sample size and the newly constructed instruments may be subjected to queries in terms of the generalizability of the findings and the validity of the items. Nevertheless, care has been taken to ensure that the necessary assumptions to conduct mutlitple regression were met as reported in the result section. In terms of validity and reliability of the items, initial factor analysis and validity process provide support for the items. Admittedly, further rigorous work on validating the items and ensuring their reliability will be continued with the hope that these instruments will become a reliable tool to be used for high school students in Malaysia.

AUTHOR NOTES

Sharifah Muzlia S. M. is a post graduate student at the Faculty of Educational Studies, University Putra Malaysia. The present paper is based on her initial findings of a larger doctorate work, of which the co-authors are her supervisors.

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