The Relationship Between Achievement Goals and Psychological Flow

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ABSTRACT

The purpose of this study was to examine the relationship between psychological flow and achievement goals. Although both constructs have been studied extensively, only minimal attention has been focused on understanding the relationship between them. Participants completed three surveys, and positive correlations were found between the overall flow experience and performance-approach goals in both academic and athletic contexts. Mastery-approach goals positively correlated with flow in an athletic context. Significant positive correlations were also found between the individual flow factors and achievement goals. Gender differences were also examined. Results from female participants showed positive correlations in the academic context, while results from male participants revealed negative correlations on the loss of self-consciousness factor.

Keywords: Flow, Achievement Goals, Correlation

Relationship between Achievement Goals and Psychological Flow Introduction and Literature Review

Psychological flow is the experience of being "in the zone" during any activity that is physically or cognitively active. Individuals in flow are more focused on the activity at hand, become less distracted by the surroundings, and may perform better (Csikszentmihalyi, 1990). Flow is also described as being a transformative experience that occurs in roughly 85% of people (Csikszentmihalyi, 1997). Flow is associated with a positive state of mind that results from one's skills being challenged, and is characterized by clear and fluid thoughts and actions, and a sense of control (Jackson & Marsh, 1996).

Research suggests that such a state may be required to experience peak performance (Jackson, Thomas, Marsh, & Smethurst, 2001). Additionally, researchers using magnetic resonance imaging found differences in neural activity during states of flow when compared to boredom or cognitive overload (Ulrich, Keller, Hoenig, Waller, & Grön, 2014). These changes occurred in areas of the brain involved with movement, rewards, and spatial orientation, among others – functional areas that relate to the different components

of the flow experience.

The flow construct has nine factors and can be measured using the Flow State Scale (FSS) (Csikszentmihalyi, 1990; Jackson & Marsh, 1996). These factors are defined as follows. Challenge-skill balance occurs when challenges from the task are perceived as being equal to one's skill level. Action-awareness merging involves one's actions becoming spontaneous. Having clear goals gives purpose to one's actions, and receiving unambiguous feedback from the task informs whether those goals are being achieved. Complete concentration indicates that one's focus is on the task, and a sense of control is the perception that one is in control of the situation. Acting with a loss of self-consciousness involves an individual becoming increasingly involved in an activity, and less concern over self-presentation. A transformation of time refers to the perception of time either speeding up or slowing down. The last factor is autotelic experience, which is simply enjoyment from doing the task.

Flow and achievement goals are important components of the motivation literature, since they are both useful for explaining why and how people invest time and energy into tasks (e.g. Csikszentmihalyi, 1990; Deci & Ryan, 1985; Harackiewicz & Elliot, 1993). Two major types of achievement goals exist: mastery and performance goals. Both goal types focus on an individual's perceived competence (Senko, Hulleman, & Harackiewicz, 2011). Mastery-oriented individuals focus on task mastery relative to past performance, whereas performance-oriented individuals focus on performance relative to others (Elliot & McGregor, 2001). These two goal types can be further divided into either an approach or avoidance focus. Approach goals emphasize pursuing success, while avoidance goals are rooted in avoiding failure (Elliot & McGregor, 2001). Together, these four goal-orientations are known as the 2 x 2 achievement goal framework, which has been examined in both academic (Achievement Goal Questionnaire – Revised (AGQ-R) and athletic contexts (Achievement Goal Questionnaire – Sport (AGQ-S) (Conroy, Elliot, & Hofer, 2003; Elliot & Murayama, 2008).

There have been limited and inconsistent findings regarding gender differences with the achievement goal framework. Alkharusi and Aldhafri (2010) found the 2 x 2 achievement goal framework exhibits structural invariance across genders. However, Murcia, Gimeno, and Coll (2008) found that males were more likely to perceive actions as taking place within a performance-based climate compared to females. Thus, there may be meaningful differences in the flow-goal relationship based on gender.

Minimal research has been conducted to understand the relationship between achievement goals and flow. Of the existing research, some stud-

ies were conducted before the AGQ and FSS were developed (e.g. Jackson & Roberts, 1992; Stein, Kimiecik, Daniels, & Jackson, 1995), and in other research the flow-achievement goal relationship was only partially explored (e.g. Cervelló, Rosa, Calvo, Jiménez, & Iglesias, 2007). Additionally, the findings from other studies have resulted in some conflicting conclusions. For example, mastery more than a performance-orientation in athletes was found to be related to experiencing flow (Jackson & Roberts, 1992). Other studies, however, found no connection between flow and goal-orientation (Jackson, Kimiecik, Ford, & Marsh, 1998). The purpose of the current study was to extend the findings of the previous studies by using the FSS and AGQs.

Hypotheses

The purpose of this study was to examine the relationships between the 2 x 2 achievement goal framework and the flow factors. Given the exploratory nature of this study, only some of the correlational relationships were predicted. For the other variables it was less clear what connections would exist.

Table 1

Hypotheses

H1	Mastery-approach goals will be positively correlated with the overall flow score
H2	Mastery-approach goals will be positively correlated with all nine flow factors
H3	Performance-approach goals will be positively correlated with the overall flow scale
H4A	Performance-approach goals will be positively correlated with seven of the flow factors (challenge-skill balance, action-awareness merging, clear goals, unambiguous feedback, concentration, control, and transformation of time)
H4B	Performance-approach goals will be negatively related to two of the flow factors (loss of self-consciousness and autotelic experience)

Hypotheses were predicted for the general relationship between the variables, however, each of these were looked at separately for each AGQ. Unique hypotheses for those different contexts were not made. Gender differences were also examined in each of these contexts.

Method

Participants

Participants in this study were 144 students enrolled in psychology courses at a mid-sized upper Midwestern university. Demographics were gathered from 120 participants (71 females) between the ages of 18 and 31

(M = 20.1, SD = 2.3). This portion of the sample included freshmen (39.2%), sophomores (24.2%), juniors (14.2%), seniors (16.7%), and 5.8% other responses. Our sample contained individuals with the following ethnicities: Asian Americans (3.3%), Caucasians (91.7%), Hispanics (1.7%), Native Americans (0.8%), and those who identified as other (2.5%). Participants received course credit for their participation.

Measures

Flow State Scale. The FSS examines the overall experience of flow, as well as each of the nine factors individually (Jackson & Marsh, 1996). This scale contains a five point Likert-type scale (1 = Strongly disagree to 5 = Strongly agree). Cronbach's alpha for the overall flow measure was .94. See Table 2 for additional information about the FSS factors.

Table 2

FSS Sample Items and Subscale Reliabilities

Subscale	Sample Item	α
Challenge-skill balance	"The challenges and my skills are at an equally high level"	.82
Action-awareness merging	"Things seem to happen automatically"	.77
Clear goals	"I have a clear idea of what I want to do"	.85
Unambiguous feedback	"It is clear to me that I am doing well"	.82
Concentration	"I have total concentration"	.83
Control	"I feel in total control of my body"	.84
Loss of self-consciousness	"I am not worried about what others are thinking of me"	.61
Transformation of time	"The way time passes seems to be different from normal"	.82
Autotelic experience	"I really enjoy the experience"	.84

The FSS is often administered after a physically active event, but for this study, participants were asked to complete the survey during class time. To account for this, the language was modified so that participants were instructed to report on past instances in which they experienced flow.

Achievement Goal Questionnaire-Revised. The AGQ-R consists of 12 items addressing four goal-orientations, three items per subscale (Elliot & Murayama, 2008). Items are rated on a five point Likert-type scale (1 = Strongly disagree to 5 = Strongly agree). Example items per subscale with the internal consistency listed in parentheses are as follows: Mastery-approach: "My goal is to learn as much as possible" (α = .78); performance-avoidance: "My aim is to avoid doing worse than other students" (α = .86); performance-approach: "I am striving to do well compared to other students" (α = .77); mastery-avoidance: "My aim is to avoid learning less than I possibly could" (α = .76).

For this scale, instructions were modified to focus on an academic context and the goal statements were also reordered, which resulted in a mastery-approach, performance-avoidance, performance-approach, and mastery-avoidance sequence. Instructions read as follows: "While reading these statements, think of how they apply to your recent academic behaviors. Please circle the one response for each item that best describes how much you agree or disagree. Carefully read each statement before answering. There are no correct or incorrect responses."

Achievement Goal Questionnaire-Sport.

The AGQ-S (Conroy et al., 2003) was developed for use in sport contexts and is very similar to the previously described AGQ-R. The AGQ-R items focus on learning whereas the AGQ-S items focus on performance. For example, a performance-approach statement from the AGQ-S reads: "It is important for me to perform better than others." Internal consistencies are as follows: mastery-approach: α = .82; mastery-avoidance: α = .83; performance-approach: α = .87; performance-avoidance: α = .77.

Procedure

Data was gathered from students in multiple classrooms, using a non-random sampling procedure. The researcher gave a brief description of the study and then distributed implied consent forms. If students agreed to participate, they were given time to ask questions before the surveys were dispersed and completed the packet in group-format in their classroom. In the packets, the AGQ-R and AGQ-S were the first two surveys, and they were counterbalanced. The next survey was the FSS, followed by a demographic questionnaire. At the end of the session, participants were debriefed and thanked for their time.

RESULTS

Pearson's two-tailed correlational analyses were calculated between the FSS, AGQ-R, and the AGQ-S (see Table 3). Results indicate partial support for H1, with a positive relationship between the overall flow experience and mastery-approach goals on the AGQ-S, r = .33, p = .001, R2 = .109. Similarly, partial support was found for H2 in the AGQ-S. Mastery-approach goals were positively correlated with action-awareness, r = .27, p = .001, R2 = .073; challenge-skill balance, r = .18, p = .035, R2 = .032; having clear goals, r = .26, p = .002, R2 = .068; receiving unambiguous feedback, r = .32, p = .001, R2 = .102; experiencing concentration, r = .20, p = .015, R2 = .040; sense of control, r = .32, p = .001, R2 = .102; and overall autotelic experience, r = .35, p = .001, R2 =.123. With the AGQ-R, there were positive correlations between mastery-approach goals and having clear goals, r = .21, p = .010, R2 = .044, receiving unambiguous feedback, r = .20, p = .019, R2 = .040, and having an overall autotelic experience, r = .20, p = .018, R2 = .040. H3 was that performance-approach goals would correlate positively with the overall flow experience. This was supported in both the AGQ-R, r = .20, p = .016, R2 = .040, and AGQ-S, r = .18, p = .032, R2 = .032.

The data partially supported H4A. Specifically, within the AGQ-S, performance-approach goals were positively related to action-awareness, r = .19, p = .20, R2 = .036; having clear goals, r = .17, p = .046, R2 = .029; receiving unambiguous feedback, r = .18, p = .034, R2 = .032; and having a sense of control r = .19, p = .023, R2 =.036. In the AGQ-R, performance-approach goals were positively related to action-awareness, r = .23, p = .005, R2 = .053; receiving unambiguous feedback, r = .20, p = .017, R2 = .040; experiencing concentration, r = .18, p = .027, R2 = .032; and a sense of control, r = .20, p = .018, R2 = .040. H4B was not supported since there was no relationship between loss of self-consciousness and performance-approach goals, and there were positive correlations between performance-approach goals and an autotelic experience in the AGQ-S, r = .24, p = .004, R2 = .058, and the AGQ-R, r = .20, p = .015, R2 = .040.

Gender differences were also examined; results for females are displayed in Table 4, and results for males are in Table 5.

Table 3

Correlations between Flow State Scale and Achievement Goal Questionnaires

	AGQ-R				AGQ-S			
	Mast. Appr.	Mast. Avoid.	Perf. Appr.	Perf. Avoid.	Mast. Appr.	Mast Avoid.	Perf. Appr.	Perf. Avoid.
Challenge Skill Balance	.01	.06	.06	.14	.18*	-.15	.08	.03
Action Awareness	.07	.04	.23**	.25**	.27**	.13	.19*	.16
Clear Goals	.21**	.01	.15	.13	.26**	.01	.17*	.17*
Unambiguous Feedback	.20**	.19*	.20*	.17*	.32**	.07	.18*	.16
Concentration on task	.08	.07	.18*	.13	.20*	-.02	.12	.05
Sense of Control	.09	.11	.20*	.17*	.32**	.05	.19*	.14
Loss of self-consciousness	.09	.07	-.06	-.07	.13	-.16	-.06	-.19*
Transformation of Time	-.03	.14	.08	.11	.06	.07	.03	.08
Autotelic Experience	.20*	.03	.20*	.23**	.35**	.08	.24**	.20*
Flow Overall	.15	.12	.20*	.20*	.33**	.02	.18*	.13

Table 4

Correlations between Flow State Scale and Achievement Goal Questionnaires for Female Participants

	AGQ-R				AGQ-S			
	Mast. Appr.	Mast. Avoid.	Perf. Appr.	Perf. Avoid.	Mast. Appr.	Mast Avoid.	Perf. Appr.	Perf. Avoid.
Challenge Skill Balance	.15	.11	.17	.24*	.16	.08	.06	-.04
Action Awareness	.18	.03	.18	.18	.28*	.26*	.10	.00
Clear Goals	.24*	.04	.24*	.16	.17	.06	.11	.05
Unambiguous Feedback	.11	.20	.30*	.31**	.15	.01	.12	.03
Concentration on task	.00	.04	.29*	.20	.07	.02	.04	-.08
Sense of Control	.07	.21	.30*	.36**	.18	.09	.14	.08
Loss of self-consciousness	.28*	.14	.18	.16	.15	.01	.15	-.00
Transformation of Time	.05	.18	.22	.16	.15	.16	.14	.14
Autotelic Experience	.33**	.04	.22	.21	.30*	.12	.22	.06
Flow	.21	.16	.33**	.31**	.25*	.12	.17	.04

Table 5

Correlations between Flow State Scale and Achievement Goal Questionnaires for Male Participants

	AGQ-R				AGQ-S			
	Mast. Appr.	Mast. Avoid.	Perf. Appr.	Perf. Avoid.	Mast. Appr.	Mast Avoid.	Perf. Appr.	Perf. Avoid.
Challenge Skill Balance	-.10	.01	-.11	-.05	.04	-.40**	-.08	.00
Action Awareness	-.09	-.09	.18	.20	.22	-.03	.14	.17
Clear Goals	.08	-.08	.09	.11	.17	-.16	.10	.20
Unambiguous Feedback	.17	.10	.09	.04	.46**	.03	.15	.22
Concentration on task	.09	-.04	-.06	-.10	.17	-.12	-.06	.00
Sense of Control	.18	-.08	.01	-.18	.45**	-.07	.07	.07
Loss of self-consciousness	-.16	-.13	-.34*	-.41**	.09	-.34*	-.34*	-.38**
Transformation of Time	-.24	.04	.09	.16	-.10	-.14	-.09	.12
Autotelic Experience	.00	-.11	.15	.25	.37**	.13	.21	.33*
Flow	-.03	-.07	.03	.03	.32*	-.19	.02	.15

DISCUSSION

In this study, the relationship between achievement goals and psychological flow was examined. Full support was found for one hypothesis, and partial support was found for three others. Due to the limited amount of previous research involving these two constructs, explanations of the data should be interpreted with caution.

H1 stated that mastery-approach goals would be positively correlated with the overall flow experience. Support for this was found with the AGQ-S, but not the AGQ-R. These results partially align with research conducted by Jackson and Roberts (1992), who found a positive relationship between task-oriented goals and experiencing flow. Our results from the AGQ-R contradict research done by Guo and Ro (2008) who found that students experienced flow in a lecture-based classroom setting. Those researchers found that students experienced a sense of control, concentration, and enjoyment (i.e. autotelic experience) during the lecture. When considering those three factors in our sample, autotelic experience was the only factor that was significantly correlated with mastery-approach goals. It is possible that this difference could be accounted for by the methodology used. Specifically, asking students to recall an academic-related situation when they experienced flow may have been more difficult than thinking about a physical activity.

As proposed in H2, mastery-approach goals would correlate positively with all nine flow factors. This was supported with the AGQ-S, where there were significant positive correlations between having a mastery-approach goal-orientation and experiencing seven of the nine flow factors. With the AGQ-R, however, only three factors were positively correlated with a mastery-approach goal-orientation: having clear goals, receiving unambiguous feedback, and having an autotelic experience. The data show that individuals with a mastery-approach goal-orientation may have a more difficult time finding optimal experiences in academic work. The contrast between flow in the AGQ-R and AGQ-S may be explained by Gute and Gute (2008), who discuss the pervasiveness of detachment in college courses. If the presence or absence of flow can be considered a measure of engagement, then the results appear to support the academic disengagement phenomenon, at least for individuals with a mastery-approach goal-orientation.

H3 stated that performance-approach goals would be positively correlated with the overall flow experience. This hypothesis was supported with the AGQ-R and AGQ-S. Specifically, there were moderate positive correlations between performance-approach goals and the overall flow experience.

Partial support was found for hypothesis H4A, where it was specu-

lated that performance-approach goals would be positively correlated with seven flow factors: challenge-skill balance, action-awareness, clear goals, unambiguous feedback, concentration, control, and time transformation. Five of these factors have significant positive correlations between performance-approach goals in at least one context. Interestingly, however, two of these factors, challenge-skill balance and time transformation, were not correlated with a performance-approach orientation in either context.

Upon further investigation, when looking at the challenge-skill factor across all goal types in both contexts, only one significant relationship occurred – this was for the mastery-approach goal-orientation. According to Csikszentmihalyi (1990), a challenge-skill balance is often enhanced by competitive situations, which would appear to be a more relevant factor for individuals with performance goals.

Additionally, Csikszentmihalyi and Csikszentmihalyi (1988) assert that a challenge-skill balance is a universal precondition for flow. This is puzzling since even though this factor was not significantly related to a performance-approach goal-orientation, there was still a positive correlation between performance-approach goals and the overall flow experience.

The time transformation factor showed nearly identical results. In this case, the non-significance could have resulted from participants referring back to times where time pressure may or may not have been as important to the activity. It could also be due to time transformation being a possible outgrowth of different factors such as concentration (Csikszentmihalyi, 1990).

H4B stated that performance-approach goals would be negatively correlated to a loss of self-consciousness and autotelic experience. The data showed that with the AGQ-R and AGQ-S, a loss of self-consciousness was not correlated, and an autotelic experience was positively correlated. The low reliability for the loss of self-consciousness factor may have contributed to this finding.

In addition to the hypotheses, when looking at the combined data from all participants, two flow factors were significantly correlated with both approach goal types in the AGQ-R and AGQ-S: an autotelic experience and receiving unambiguous feedback. Because of this occurrence, these two flow factors may be important elements of the overall flow experience for approach-oriented individuals. This is not surprising since Csikszentmihalyi (1975) suggested that people seek activities that are intrinsically rewarding. Also, when considering the factor of unambiguous feedback, phenomena such as the negative self-efficacy effect (see Schmidt & DeShon, 2009) may explain some of the results.

Gender Differences

In addition to looking at the results separately with the AGQ-R and AGQ-S, gender differences were also examined. These analyses revealed some interesting patterns. Specifically, the data from male participants showed that nine of the 11 significant correlations were contained within the AGQ-S. This effect could simply be the result of males being able to recall more sport-related flow promoting activities compared to academic-related activities.

The data from male participants also showed that, with the AGQ-R and AGQ-S, there was a moderate negative correlation for individuals who had performance goal-orientations and the ability to experience a loss of self-consciousness. This was the only instance that significant negative relationships were mirrored in both contexts. Extending on this observation, there were also no significant relationships between performance-oriented males and the overall flow experience. Since this effect was observed in performance goals (i.e. socially normed competence), it may be worthwhile for future researchers to assess the relationship between performance goals and other socially relevant phenomena such as self-monitoring (see Lennox & Wolfe, 1984). Doing so may elucidate what conditions inhibit performance-oriented males from experiencing a loss of self-consciousness.

Another trend for males was that a mastery-approach orientation was the only goal type with multiple significant relationships between flow factors. These relationships were moderate for unambiguous feedback, sense of control, and autotelic experience. The significance of the overall flow experience for this goal-orientation supports research conducted by Jackson and Roberts (1992) who found that athletes with high mastery-orientation experienced flow more frequently than individuals with a competitive-orientation.

Another observation from the males was the significant positive relationship between performance-avoidance goals and an autotelic experience in the AGQ-S. That result shows that, in sport activities, performance-avoidance males have autotelic experiences, which is somewhat supportive of research done by Bailis (2001), who found that athletes who engage in self-handicapping report higher levels of optimal experience after competitive events.

When looking at the data from female participants, there was a different trend overall; their data contained 12 of 16 significant relationships within the academic context.

For females, a positive correlation between performance-approach and mastery-approach goals and action-awareness was found. This is not sur-

prising since Csikszentmihalyi (1990) identifies this factor as one of the most universal characteristics of flow reported by individuals.

For females, the data also showed that individuals who reported being performance-oriented had moderate, positive relationships between several flow factors. Two of these factors, unambiguous feedback and a sense of control, were present in both performance goal types. As discussed earlier, the significance of unambiguous feedback may be explained by the negative self-efficacy effect or other self-regulation theories. Sense of control could perhaps be related to females having more of an internal locus of control when it comes to academic-related subject matter. The fact that most of the significant relationships for females involve socially normed goals suggests that there may be some social dynamics in an academic environment that could promote flow.

Limitations and Suggestions for Future Research

Although this study revealed some contrasts between goals, flow experiences, and gender, there were also limitations. First, the FSS was administered in a classroom setting and instructed students to think back to times when they may have experienced flow. This approach is different from the one that has been used by Jackson and colleagues (Jackson, et al., 1998), where they surveyed groups of athletes immediately after a common sporting event. Not having a common reference activity may have influenced the quality of our results. Related to this, the items were modified to refer to an event in general, rather than a specific event. Additionally, the instructions were written to inform participants of times when flow may have occurred. Although we attempted to write the instructions in an objective manner, they may have unknowingly introduced response biases.

The sample also contained limitations, since it had more females (59 percent) compared to the university population (47 percent), and participants were younger (M = 20.1) compared to the university population (M = 23.0) (Office of Planning, Assessment, Research & Quality, 2014). This suggests that the sample may not have been an accurate representation of the undergraduate population at the institution, and thus, the characteristics of the participants may extend better to a certain college(s) within the university. Similarly, since it was a student sample, results may not be as applicable to non-student populations. Future investigations should include a more diverse sample to maximize external validity.

CONCLUSION

This study showed that there are differences between individuals who report different goal-orientations and their respective frequencies of experiencing flow factors. In general, approach goals are associated with flow when thinking about sports, and performance goals are associated with flow when thinking about academics. Additionally, females reported experiencing flow factors more when they thought about academics, especially if they reported having performance goals. In contrast, when males thought about sports, individuals with mastery-approach goals reported experiencing flow factors more frequently. However, males also reported experiencing a loss of self-consciousness less frequently in both contexts.

More research is needed to understand the flow-achievement goal dynamics, but if these results can be replicated, they may provide insight for developing training programs. For example, teachers, coaches, trainers, and managers may be able to adjust their approaches to accommodate individuals with different goal-orientations or genders. Doing so could increase an individuals' ability to experience flow, and in turn, achieve optimal performance.

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