

Examining the Connections between Personality and Group-Based Learning

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ABSTRACT

The most common interpretation of personality is a tripartite model: introversion, extroversion, and ambiversion. Personality styles can have an impact not only on how people develop relationships and pursue interests, but also how students operate in the classroom. Given that schools and teachers frequently require students to collaborate in group-based learning activities, it is crucial to consider how personality styles affect this process. In this cross-sectional research study, 14 high school participants responded to a questionnaire about personality type and group learning experiences. The questionnaire was designed with the goal of gathering experiences from high school students about group work and group-based learning in the classroom and personality styles. The results of the questionnaire showed that there was no statistically significant difference between the three personality styles. The results were also analyzed for themes to compare commonalities and differences in responses across personality styles. There was a relatively small sample size in the current study of 14 participants out of the 60 who were sent the questionnaire meaning this study might not have been able to fully capture the most accurate answer to the question of whether introverts work well while working in groups. Nonetheless, this study paves the way for further research on the topic of group-based learning and personality styles.

Introduction

Is the way we learn connected to our personality? The most common interpretation of personality is a tripartite model that includes three types of personality organization: introversion, extroversion, and ambiversion. The idea of Introverts was introduced by Carl Jung in 1921 in his book *Psychological Types*. According to Jung and other personality psychologists, introverted people tend to be more inwardly focused and more sensitive to stimulating environments (Eysenck, 1990). Meanwhile, extroverts are generally more outspoken and talkative (Deary, Mathews, & Whiteman, 2009). Ambiverts are somewhere in the middle, drawing from both the strengths of introverts and extroverts (Cain 2012).

Personality styles can have an impact not only on how people navigate relationships and seek out interests, but also on how students operate in the classroom. In fact, increasingly, researchers are turning to explorations of how personality styles impact classroom learning (Williamson & Watson, 2007). Given that schools and teachers frequently require students to collaborate in group-based learning activities, it is crucial to consider how personality styles affect this process.

A study was conducted in a public university in Edinburgh, Scotland to help find the best way to arrange groups in group work and projects by Huxham & Land (2010). The study was conducted twice, once with 104 students and another time with 139 students, all of which were in their first year studying Biological Sciences. In the beginning of the course, students were asked to complete the Honey and Mumford Learning Styles questionnaire, which separated participants into one of four learning style groups: activist, theorist, pragmatist, and reflector (Honey & Mumford, 1986). Then, half of the students were organized into random groups, while the remaining students were organized based on their learning styles to have groups as balanced and

heterogenous as possible. The results revealed that there was no significant difference in final grades between the balanced learning styles groups and the randomly assigned groups.

Chiriac (2014) explored whether schools could use group-based learning as an incentive, and whether group work could be effective for students learning new material. A questionnaire was given to 210 students in university-level biology and psychology courses to document their experiences of group work; the questionnaire made use of both multiple-choice and open-ended questions (Chiriac, 2014). The questionnaire found that 97% of students responded that working in a group somehow facilitated academic knowledge and collaborative abilities (Chiriac, 2014). At the same time, a common response was that groups might be working ineffectively due to loss of focus and apprehension about conflict (Chiriac, 2014).

Further studies have explored the differences in learning between introverts and extroverts specifically. A study by Flanagan and Addy (2016) measured whether self-identified introverts and extroverts were advantaged or disadvantaged when participating in group-based learning activities. In this study, college-age students in an introductory biology course were asked to self-identify as either an “introvert” or an “extrovert” (Flanagan & Addy, 2016). Students were subsequently divided into heterogeneous groups of five or six based on their self-reported ratings. The biology course was taught in such a way that 50% of the in-class time was devoted to group-based activities (Flanagan & Addy, 2016). The student's performance was assessed based on final class grades. Students also completed an Experience of Teaching and Learning (ETL) questionnaire after the term to ascertain greater information about peer support and engagement during the group learning experience (Flanagan & Addy, 2016). Flanagan and Addy (2016) found that there was no significant difference between the final grades of introverts, extroverts (and ambiverts) and levels of perceived peer support and engagement also did not differ among the groups. The results suggest that introverts and extroverts display no significant difference in performance and attitude towards group-based learning.

All three studies highlighted above suggest that group-based learning did not hamper academic performance or classroom experience for introverts or extroverts, which appears to debunk expectations of group work experience. While the results do offer insight for educators and psychologists, there were limitations with respect to the studies' methodologies and analyses. For instance, in Chiriac's (2014) study, the questionnaire did not address how groups were organized and what type of work occurred in the groups. Moreover, all three studies included college-age students in university settings and offer little insight into personality and learning among different age groups.

To make up for the gap in research, the present study explored personality style and group learning experiences among high school students. Students in the study answered two questionnaires; the first brief questionnaire determined students' predominant personality style (i.e. introvert, extrovert, ambivert); the second survey included multiple choice, Likert scale, and open-ended short answer questions pertaining to students' academic group work experiences (i.e. How much communication happens in your academic groups? How much do you enjoy group work? Do you think group work helps in learning new material). The responses were analyzed with quantitative and qualitative methods (i.e. coding themes) to determine how students who self-identify as introverts, extroverts, and ambiverts learn in academic group settings. If the results fall in line with previous work, we expect to find no significant differences in group work experiences across personality styles; however, if the results differ from past research, it was hypothesized that introverts overall would have more negative experiences and ratings of group work.

Methods

Participants

In this cross-sectional research study, 14 high school participants responded to a questionnaire about personality type and group learning experiences. The mean age of participants was 16.86, with an age range of 15 to 18 and a grade level range of 10th to 12th grades. Six participants were male-identified, seven were female-identified, one was nonbinary. Out of the 14 participants in this study, eight identified themselves as White, one as Hispanic, and seven as Asian. The survey was administered in September 2021, and all participants were students that attended a public high school in Cupertino, California (See Table 1). Sixty participants were sent a link to the study survey over email and were informed about the purpose of the questionnaire. They were also told in the email that their answers would be de-identified and confidential. The response rate was 23.3%.

Materials

The questionnaire was designed with the goal of gathering experiences from high school students about classroom group work and group-based learning and personality styles. Students in the study completed two questionnaires. The first 10 item questionnaire is known as the “Quiet Personality Test” and was developed by Susan Cain to determine students’ predominant personality style (i.e. introvert, extrovert, ambivert) (the study can be accessed by following this link: <https://www.quietrev.com/the-introvert-test/?from=takethequiz>). This questionnaire has been used in previous research on personality style (Flanagan & Addy, 2016). The second survey was intended to assess students’ academic work experiences. The questions included multiple-choice, Likert scale, and open-ended short answer questions (i.e. How much communication happens in your academic groups? How much do you enjoy group work? Do you think group work helps in learning new material). The questionnaire was developed based on previous questionnaires used to assess group work experiences (Chiariac, 2014; Flanagan & Addy, 2016).

Results

Quantitative Analysis

Within the sample of participants, and based on the personality style quiz, seven people were introverts; two were extroverts; and five were ambiverts. 80% of individuals agreed with their personality categorization based on the personality quiz. On average, students reported that they engaged in group work in 66% of their classes. On average, students reported that groups included four students and groups were either assigned by the teacher or formed via self-selection. According to the students’ reports, these groups sometimes remained together for only one session, and for others, across an entire semester.

Single factor ANOVAs were conducted to compare responses of individuals across personality types. On average, there was no statistically significant difference in ratings of group communication across introverts ($M = 6.86$, $SD = 1.86$), extroverts ($M = 8.50$, $SD = 0.71$), and ambiverts ($M = 6.8$, $SD = 2.59$), $F(2, 14) = .54$, $p > .05$. On average, there was no statistically significant difference in ratings of equal contribution across introverts ($M = 5.71$, $SD = 2.12$), extroverts ($M = 6$, $SD = 1.41$), and ambiverts ($M = 5.4$, $SD = 2.07$), $F(2, 14) = .09$, $p > .05$. In addition, there was no statistically significant difference in mean ratings of how frequently participants felt their opinions were valued and heard across introverts ($M = 6.29$, $SD = 4.24$), extroverts ($M = 9$, $SD = 0$), and ambiverts ($M = 7$, $SD = 2.55$), $F(2, 14) = .89$, $p > .05$. Furthermore, there was no significant difference in their desire to be heard more within group work environments, throughout introverts ($M = 4.00$, $SD = 0.53$), extroverts ($M = 0$, $SD = 0$), and ambiverts ($M = 3$, $SD = 0.55$), $F(2, 14) = 1.11$, $p > .05$. Likewise, there was no significant difference across introverts ($M = 6.71$, $SD = 1.70$), extroverts ($M = 8$, $SD = 0$), and ambiverts ($M = 6.6$, $SD = 3.51$), about their opinions on whether group work helps in learning new material, $F(2, 14) = .25$, p

> .05. Similarly, there was no significant difference across introverts ($M = 4.43$, $SD = 0.71$), extroverts ($M = 7.5$, $SD = 0.71$), and ambiverts ($M = 6.2$, $SD = 3.56$), about their enjoyment of group work, $F(2,14) = 1.32 > .05$

Overall, the mode of answers given by individuals were above the median for their ratings of group communication, the ratings of equal contribution, whether their opinions were heard and valued, and their opinion on how much group-based learning helped them learn new material. As for the participant's enjoyment of group work, both extroverts and ambiverts noted that their enjoyment average was over the median; however, for introverts, the average for how much introverts enjoy group work fell below the median.

Qualitative Analysis

Researchers read participants' short answer responses and identified themes that emerged across participants based on qualitative methods of analysis. Three themes were identified during the analysis: the enjoyment of group work, improvements to group work, and experiences of group work. Themes were partly based on the questions posed in the survey and based on topics raised by the participants in their responses.

Enjoyment of Group Work

Firstly, in the response to the participant's enjoyment of group work, introverts had a common response of not trusting other group members to complete the work efficiently or with the quality they expected, another common point was difficulty focusing or feeling anxious. For instance, "I dislike group work because I generally work faster by myself, and it's less energetically demanding to do the work independently." Extroverts meanwhile reported mostly positive reactions to this question, saying they enjoyed talking. One extrovert reported: "I very much enjoy group work, I like talking a lot." Ambiverts fell somewhere in the middle. On one hand, they said group work was enjoyable because there was less pressure on them, overall being academically beneficial; but on the other hand, some reported that group work felt draining for them. One ambivert participant wrote, "Sometimes it can be tiring or draining but is often enjoyable."

Improvements to Group Work

When asked about any improvements pertaining to group work, individuals, across all personality styles, emphasized the need for choice in groups. Participants from all three personality styles advocated for group work being optional instead of the typical required group work in schools today. One extrovert reported, "I do think students should have the choice of group work or not; I think it would increase efficiency of working. Students who don't want to work in a group don't need to, students who want to work in groups are able to work in groups." This was a common response, echoed by all participants. In addition to the choice of group, ambiverts and introverts, but not extroverts, also discuss the need for equal contribution in group work.

Experiences of Group Work

Among all personality styles, individuals reported positive experiences while working in recent group-based learning settings. One response by an introvert captured the positive sentiments: "In one of my classes we built towers out of sheets of paper with our group. It was interesting, and I think we did a good job considering everyone's ideas." Introverts and Ambiverts also discuss problems with communication or contribution within groups, which is exemplified by this Introverted student's experience, "One of my classes required us to get into small groups of three to read and then answer questions. This was very difficult for me; people being so close to me having a discussion is very stressful. Not only did it make it hard to focus, I also often feel like I am being talked over and my points get ignored."

Discussion

The current study focuses on high school students' experiences of group work instead of university-age students that we see in previous studies, giving students a chance to confidentially share their positive or negative experiences. It's important to consider high school because 9th through 12th grade students learn in a different classroom structure, and experience a different developmental stage compared to university age students. The quantitative analysis of the data collected from this questionnaire revealed that there were no significant differences between the three groups in terms of their classroom group learning experiences. The qualitative analysis showed that besides the theme of enjoyment of group work, there were no significant differences between the three personality styles. The results of the current study are in line with previous work on this topic, illustrating that there are no differences between individuals with different personality styles and their perspectives on group learning.

Limitations

There are some limitations in the current study that have to do with the construction of this study and participant diversity. First, the questionnaire used in this study was sent out to students in one high school in Cupertino, California. It would be ideal to include experiences from other schools where classroom learning structure or teaching styles are different. Second, there was a relatively small sample size of 14 participants out of the 60 who were sent the questionnaire, meaning this study might not have been able to fully capture the most accurate answer to the question of whether introverts work well while working in groups. Furthermore, in the study, most participants were Asian or White, with 43% being White and 50% being Asian. There was also little age range when surveying participants, with 79% being seniors. Lastly, there was an imbalance in the number of personality styles that may not have fully captured the experiences of all three personality styles.

Future Directions

Future studies would include incorporating teachers' perceptions of group work to gain further insight into the reasoning behind integrating group-based learning in their classrooms, whether they believe group-based learning is helpful or not, and the advantages as well as disadvantages that come with it. Another possible direction this study can lead is outside of the classroom or school environment, into workplaces, discovering how personality styles might impact efficiency in the workplace among adults. Lastly, one could conduct an observational experiment in classrooms to observe group work in action, which could bring some more insightful information as compared to self-report surveys and questionnaires.

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