

IMPACT OF ADIZES'S TEAM ROLES ON COLLABORATION, DISAGREEMENTS, AND
SUCCESS IN STUDENT ENTERPRISES –
TEAMWORK PEDAGOGY IN HIGHER EDUCATION

Ida Ulrikke Valand and Tormod Bjørkkjær
University of Agder, Norway

Abstract: *This study examines Adizes's management model implemented in student enterprise teams among undergraduate students at the University of Agder, Norway, exploring factors that affect the collaborative process. As Adizes's model claims four team roles (integrator, administrator, producer, entrepreneur) are required for effective and targeted collaboration, the researchers hypothesized that student enterprises with four roles present would collaborate better than teams with fewer roles present. Prior to commencing the student enterprise, each student categorized themselves according to these four roles. Eleven student enterprise teams were interviewed regarding their collaborative process. The four roles were represented to different extent in each team. Students reported collaborative benefits when having all four roles represented in the group. Most students ranked collaboration and ownership to business idea high and reported fruitful team discussions with only a few teams experiencing conflicts. Due to limited variance, further research is needed to investigate the hypothesis.*

Key words: student enterprise, Adizes management model, collaboration, teamwork

Collaboration as an Essential Skill in the Post Nation State Era

Communities as well as nations are changing rapidly these days with globalization being one of the main drivers of this global evolution. Adapting to new prerequisites and collaborating with people from different cultural backgrounds is becoming the mainstay of everyday life. Teamwork or collaboration is an essential 21st century skill across all workplaces and organizations (Riebe, Girardi & Whitsed, 2016), which is highly relevant for future teachers and health professionals within food and nutrition both in Norway and abroad, for instance in multidisciplinary tasks (Fanzo et al., 2015; Norwegian Ministry of Education and Research [NMER], 2017). One way of training for real life scenarios and preparing for challenges of tomorrow is by implementing entrepreneurship in teaching curriculum in higher education, which is in

focus in Norway (NMER, Ministry of Local Government and Regional Development [MLGRD] & Ministry of Trade and Industry [MTI], 2006; 2009). According to The European Parliament & the Council of the European Union (2006), entrepreneurship has been defined as one of eight key competencies required for lifelong learning and can be defined as

[...] a dynamic and social process where individuals, alone or in collaboration, identify opportunities for innovation and act upon these by transforming ideas into practical and targeted activities, whether in social, cultural or economic context (NMER, MTI, & MLGRD, 2006, p. 4).

Implementing entrepreneurship in teaching curriculum and pedagogy is essential within both teacher education (Haara & Jenssen, 2016) and the food and nutrition field (Mann & Blum, 2004) and has been successful at several universities for a number of years,

including the University of Agder (UiA) (Aarek & Ask, 2012; Ask, Valand & Aarek, 2019).

A central feature of entrepreneurship is collaboration or teamwork involving communication between humans. According to Vygotsky's sociocultural theory of learning, humans learn in a social process involving communication (Vygotsky, 1978). This social constructivist way of thinking, where knowledge is not reproduced, but produced, is essential in pedagogical entrepreneurship where the right answer may not be known for teacher nor student. Similarly, constructivist thinking is used in group or team approaches such as collaborative and cooperative learning where groups as well as individuals are accountable for learning and outcome, resulting in enhanced social collaboration and productivity (Gillies, 2014; Laal, 2003). The former mentioned teamwork pedagogy approaches have been extensively reviewed in the context of higher education by Riebe et al. (2016).

Team Collaboration

Working in teams per se in a learning environment is not necessarily functional, especially in the case of random ad hoc groups, as reviewed by Gillies (2014). It is known that low-ability students learn more in heterogeneous groups with a blend of low, medium, and high-ability students, while medium-ability students benefit more from homogenous ability groups, and finally the high-ability students thrive in all sorts of groups (Lou et al., 1996). Size matters too, as smaller groups rather than somewhat larger groups seem to yield higher achievement in learning settings (Gillies, 2014). Based on the researchers' experience, an important question for many university teachers is how to implement effective teamwork, as students can be quite vocal about their dislike for

group assessments (Taylor, 2011). Many students tend to collaborate with their friends, whom they like and know well, thus avoiding conflicts and social loafing (Riebe et al., 2016). This student response begs the question if a more targeted team composition process might be more effective in higher education situations.

Setting of Current Practice-Based Research

The research reported in this article was situated in an undergraduate applied science course in food and nutrition and teacher education in home economics respectively at UiA, spring 2017. These two courses are relatively new program initiatives that assess groups of students' abilities to plan and operate a student enterprise (SE) during one semester of their degree program. The two courses comprise the regular entrepreneurship education offered at the researchers' institute, and they have not been research evaluated previously. The primary aim of the SE is to develop and market a product or service for the food, nutrition, and/or sports industry. A main purpose of the courses was for students to learn to collaborate effectively in their SE teams, and this process was an important aspect of the SE. Each SE team had a supervisor at UiA, and a mentor from the practice field besides access to a local branch of a national entrepreneurship organisation; Ungt Entreprenørskap (Young Entrepreneurship; www.ue.no).

Team Roles in Enterprises

New enterprises are often wrongly associated with being formed by one person, the creative entrepreneur, and rather often, a team is behind such enterprises (Aldrich, Carter, & Reynolds, 2004; Davidsson & Honig, 2003). As in SEs, different tasks and roles need to be fulfilled. In theory, collaboration can be

productive, but in practice, different goals among team members may induce conflicts (Halfhill, Sundstrom, Lahner, Calderone, & Nielsen, 2005; Zhou, Hu, & Zay, 2015). These conflicts may be attributed to the fact that human personality is varied. While there are different personality models like the Big Five (Saucier & Goldberg, 1998), the fields of psychology and personalities are beyond the scope of the present study. In the previously mentioned courses at UiA, they have for some years used a team management style model based on Adizes (1976; 2004) in a setting of targeted SE teams.

Adizes's (1976; 2004) classical management style classification is a research-based model, which describes four main roles of management that must be performed to prevent mismanagement in organisations or companies. A general description of the four roles—integrator, administrator, producer, and entrepreneur—are as follows: the *integrator* is good at communicating, dedicated to creating a pleasant and team-oriented working environment, listens to the individual's opinion, but avoids conflicts; the *administrator* is analytical, accurate, likes planning and routines, yet can forget to involve other people; the *producer* is clear, resolute, result- and action-oriented, but can ignore good training prior to action; and the *entrepreneur* is enthusiastic, flexible, solution- and action-oriented, however their ideas and solutions can often be unrealistic. Adizes concluded that a person rarely excels at all four roles in a good way as a business manager, and at some point, starts to mismanage. Thus, the organization or company will suffer detrimentally over time, implying that the managerial role is too difficult for one person to perform alone. In SEs at UiA, the researchers' experience was that students almost always decide on issues in a joint manner, even though one student may be the group leader. In this respect, a team could potentially possess all four roles

according to Adizes and thus work effectively and goal-oriented, which is a concept used in SEs at UiA. Based on the researchers' general experience and Adizes's (1976; 2004) work, students typically identify themselves with one or two main roles, but it can occur that all the above four roles are present in one student. The Adizes's model has been implemented at UiA for students to reflect upon how they contribute in a SE team. When choosing their own team, they may thus possibly not only work with friends they know well but think of other students' roles or attributes according to the model of Adizes as well, before deciding the team composition.

The first author of this article convened the SE course for nutrition students, and the authors primarily wanted to understand how the four roles, used as a basis in teaching, impact collaboration in SE teams. Secondly, the authors were interested in student ownership to business idea, occurrence of conflicts or disagreements, and SE success. To the researchers' knowledge the Adizes's model has not been used in this respect previously, and the rationale was to possibly better understand and improve teaching practice with an eye on the students' perspectives on collaboration in SE teams. Based on Adizes's model (1976; 2004), the researchers hypothesized that SEs with four team roles present would collaborate well and thus excel compared to SEs containing only one, two or three roles.

Research Methodology

Either teacher education students in home economics or nutrition students from UiA comprised the SEs. They initially received written and oral information about the study by the first author. All 12 SEs from the two courses were asked to participate, and if willing, each student filled out a questionnaire regarding how they would

classify themselves according to the Adizes's (1976; 2004) four roles. At the beginning of the courses (January), the students attended a lecture on the four roles and their qualities of collaboration as described above. At the end of the courses, a written project report of their work was delivered as an exam and given grades. At the start of the study (January), the students classified themselves from 0 to 100 percent for each role with 10 percent cut-off levels (i.e. 0%, 10% etc.). The total sum of the four roles should be 100% for each student. This classification was the basis for a group interview, performed in the early stages of SE team collaboration (February-March). At the end of the courses (May, main sampling), a similar group interview and team role classification was performed. The SE teams were interviewed to get a thorough understanding of the collaboration, ownership to business idea, occurrence of disagreements, conflicts, and successes that occurred. When appropriate, the students provided a quantitative measure of variables (i.e. evaluation of collaboration, ownership to business idea and success) during the interview. This quantification was implemented in order to detect possible differences between both students in each SE and the different SEs respectively.

In this project, a combination of qualitative and quantitative methods was used to investigate the impact of team roles on collaboration, disagreements or potential conflicts, and successes. As mixed methods increase the width and depth to which the research questions may be examined, the credibility of the research findings may be strengthened (Hesse-Bieber, 2010, p. 3–6).

Interviews

The SE team interviews were performed in a private room and lasted 25 to 40 minutes. The students were informed about the purpose of the interviews, and that their participation in

the study would not affect their grades. The participants were granted confidentiality and could withdraw from the study at any time without having to give a reason. It was underlined that the goal was merely to investigate the impact of team roles on SE team collaboration, not to search for potential bad collaboration or conflicts. A semi-structured interview guide, mostly with open-ended questions, was used. The interview guide consisted of individual and team questions, and follow-up questions were asked when appropriate. Individual and group questions were sampled simultaneously due to practical issues (e.g. time constraint). Questions in the first interview guide sought information on the current situation, while questions in the later (main) interview guide investigated the possible changes from the first interviews and the whole SE collaboration process. Individual questions focused on SE team roles, ownership to business idea (a sense of belonging; being passionate about it), personal goal with SE, expectations for own and other students work input in SE, and collaboration issues. Students' goals and expectations were investigated regarding possible impact on collaboration. Team questions focused on disagreements and potential conflicts and what solutions were made in case of the latter. Furthermore, the impact of each role on SE team collaboration was investigated by means of a focus discussion in the last interviews.

Ownership to business idea and team collaboration were also individually graded by the students at both interviews from 0 to 100%, with a 5 percent cut-off points (50%, 55% etc.). In the last interviews, success rate (e.g. number of products sold) was evaluated with each SE ranging 100% as the initial goal of the SE with a 10 percent cut-off points (50%, 60% etc.). The interviews were recorded digitally using a tape recorder. Students were given identification letters (A,

B, C etc.) as well as the SEs (1, 2 etc.), and they were asked not to reveal sensitive information. During team interviews, one of the authors referred the conversation in real time, and afterwards, a written summary of each interview was discussed between the researchers. The interview recordings were listened to afterwards to secure full coverage of data before the recording was deleted.

Data Analysis

The quantitative data from the role classification were plotted in Microsoft Excel. When a student classified him-/herself as mostly an integrator for instance, such a term was used for this student. To simplify and clarify the presentation of the distribution of SE team roles, mean team roles were calculated for all SEs, as each student's role was reported in quantitative numbers. Also, the skewness of the distribution of mean team roles in each SE was calculated by finding the difference between mean value and 25 for each team role and summarizing these numbers. The SE closest to 25% of each role had the most even mean role distribution. To compare SEs, mean evaluation of collaboration, success rate, and ownership to business idea were also calculated and plotted in Microsoft Excel. Interview data were processed manually by both authors, based on the semi-structured interview guide, and all findings were categorised, analysed, and interpreted in the urge to understand the SE team collaboration phenomena and team processes. Relevant quotes were translated from Norwegian to English. The aim of the presentation of results is to represent the students' thoughts and experiences.

Results and Discussion

All invited students (n=51) classified themselves according to the four team roles, and 11 SEs (n=47; 92 %) were interviewed in groups at the initial sampling. SE5 did not

attend any interviews and was excluded from the data analyses. Four SEs (n=19) dropped out before the last interview, mainly due to exams and time constraint. A few students from some groups were prevented from attending interviews, but the researchers chose to conduct the interviews, nevertheless. In these cases, remaining members of the SE were asked whether they believed other opinions might appear if all members were present, but they all answered no. As only two of five students in SE4 were represented at the last interview, quantitative data from the first interview are shown. Emphasis has been put on data from the later phase interviews due to more collaboration experience, and SEs with particularly interesting results concerning the research questions have been highlighted.

The main agenda of this practice-based research was to investigate the impact of SE team composition regarding Adizes's (1976; 2004) four roles on collaboration, disagreements and success, thus distribution of team roles in all SEs will be presented. As the hypothesis was that team composition affects team collaboration and SE success based on Adizes's work, it was important to investigate potential differences in team role distribution among SEs. To compare SEs, a list of the most to the least even team role distribution will be presented. Further, mean evaluation of ownership to business idea, collaboration, success, and occurrence of conflicts or disagreements for each SE will be listed. Because all SEs contained four team roles and the variance is limited, data will mainly be presented for each SE team rather than individual students.

Distribution of Team Roles in Student Enterprises

The SEs consisted of 3-6 students, mostly 4 students (Table 1, Column 1). According to Lou et al. (1996), groups of 3-4 students may

achieve better outcomes compared to larger groups of 5-7 students. The mean distribution

of team roles in each SE with minimum and maximum values is presented in Table 1.

Table 1
Mean Distribution of Team Roles (percent) in Student Enterprises

	Integrator	Administrator	Producer	Entrepreneur
SE1 (n=3)	30 (10-50)	40 (30-50)	20 (10-40)	10 (0-20)
SE2 (n=4)	18 (10-30)	28 (10-60)	25 (10-40)	30 (10-50)
SE3 (n=5)	22 (0-40)	38 (10-80)	36 (20-50)	4 (0-10)
SE4 (n=5)	34 (20-50)	20 (0-30)	20 (10-30)	26 (10-70)
SE6 (n=4)	15 (0-30)	43 (20-60)	35 (10-80)	8 (0-20)
SE7 (n=4)	18 (10-30)	28 (10-50)	40 (20-50)	15 (10-30)
SE8 (n=4)	28 (0-80)	15 (0-40)	33 (20-60)	25 (0-50)
SE9 (n=4)	23 (10-40)	30 (20-60)	38 (20-50)	10 (0-20)
SE10 (n=4)	38 (10-50)	23 (0-30)	13 (0-30)	28 (10-60)
SE11 (n=4)	30 (10-50)	20 (10-40)	25 (0-60)	25 (0-50)
SE12 (n=6)	23 (0-40)	33 (20-50)	25 (10-60)	18 (0-30)
Mean, all SEs (n=47)	25 (0-80)	29 (0-80)	28 (0-80)	18 (0-70)

Note: SE2-4, SE9, SE12: Data from the first interview. SE1, SE6-8, SE10-11: Data from the last (main) interview. Data are presented as means with minimum and maximum values. SE, student enterprise.

As Table 1 illustrates, all four roles are represented in all SEs, thus limiting the variance, although SE3 and SE6 have very little entrepreneur characteristics (4% and 8%, respectively). To the researchers' knowledge, no other studies have reported such data using Adizes's (1976; 2004) model before. SE6 is the SE with the least even mean distribution of roles with an overweight of administrator characteristics (43%). In SE11, however, the role distribution is relatively even. Overall, the administrator

and producer roles are most commonly represented (29% and 28%, respectively) among all SEs, and the entrepreneur is the least represented role (18%).

To better illustrate the variation in mean team role distribution among SEs, a graphical presentation of the mean distribution of roles is presented in Figure 1. Whereas, Figure 2 shows the ranking of the SEs from most to least even mean distribution of roles.

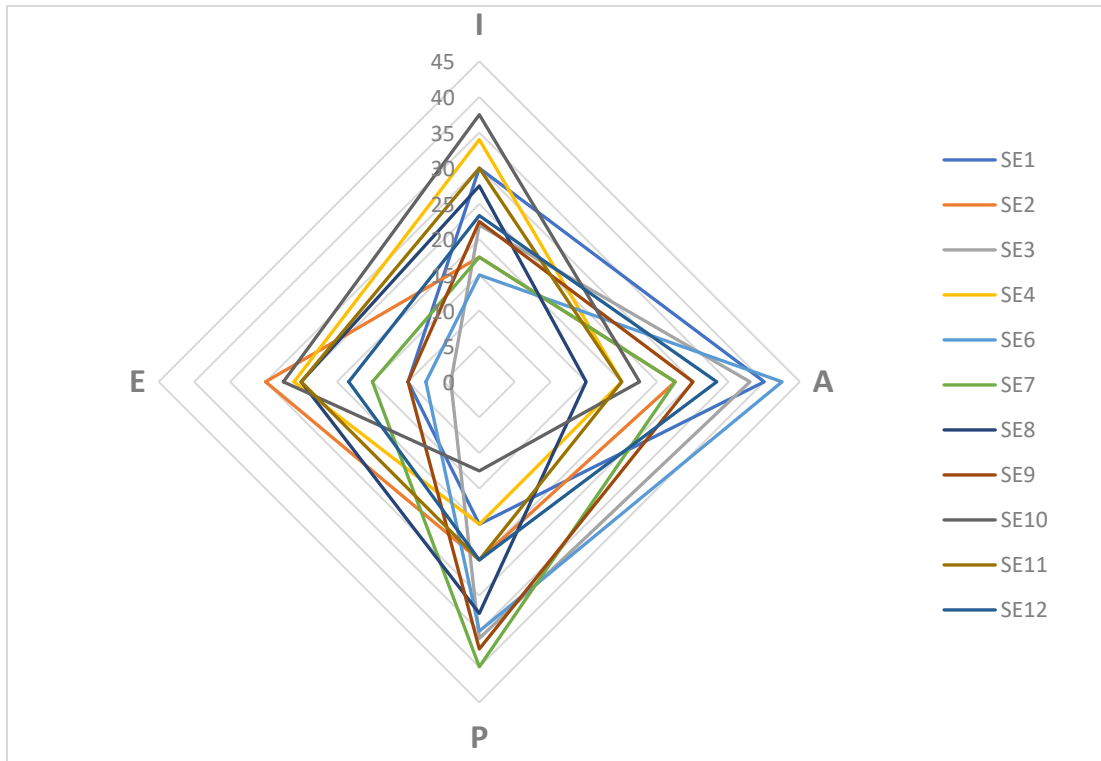


Figure 1. Mean distribution of team roles (percent) for all 11 SEs. SE2-4, SE9, SE12: Data from the first interview. SE1, SE6-8, SE10-11: Data from the last (main) interview. Roles are identified as I–integrator; A– administrator; P–producer; E–entrepreneur.

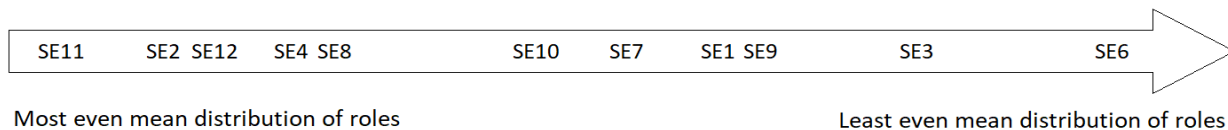


Figure 2. Ranking of SEs from most to least even mean distribution of team roles.

Evaluation of and Reflections about Ownership to Business Idea, Collaboration, and Success Rate in SEs

In Table 2, mean evaluation of ownership to business idea, team collaboration, and success rate in percentage are presented. Table 2 shows that most SEs ranked both ownership to business idea and team collaboration relatively high, and overall, collaboration was ranked higher than ownership to business idea. Although mean distribution of team roles varied among the

SEs, all four team roles were represented in all SEs to some extent (Table 1). During interviews, many students pointed out that all team roles were important in the SE team. For example, student C in SE4 said

It was the entrepreneur (student D) who came up with the idea at all, so without him/her we would probably have done something completely different today. So, in that respect, I would say that we have been very dependent on this person. We could always have thought of something else, but probably not as

creative. But in general, I would say that all roles are very important for collaboration – e.g. without the producer, little would be done. We have also depended on the structured one [administrator] to set up plans etc. The integrator is the glue of the team...; all of them have been important contributors.

SE6 also expressed that all four roles were important, and despite being the SE with the

least even mean role distribution, they had not missed more entrepreneur characteristics as they came up with the right business idea very early in the SE process. They admitted however that all of them probably have more entrepreneur characteristics than they “dared” to report. All of them had been creative in their own way. SE8 told that none of the roles excelled, and that all four roles had been important for wellbeing, collaboration, and progress in the SE.

Table 2
Mean Evaluation of Ownership to Business Idea, Collaboration, and Success

Student Enterprise	Means		Success
	Ownership to Business Idea	Collaboration	
SE1	83 (80-90)	65 (60-70)	75
SE2*	77 (50-100)	88 (85-90)	
SE3	70 (60-80)	87 (85-90)	
SE4*	75 (70-80)	76 (75-80)	600**
SE6	99 (95-100)	95 (95)	200
SE7	48 (40-50)	75 (60-80)	60
SE8	96 (90-100)	100 (100)	200
SE9	75 (65-85)	93 (90-100)	
SE10	80 (60-90)	96 (95-100)	70
SE11	100 (100)	86 (80-90)	150
SE12*	92 (80-100)	100 (100)	

Note. Data are presented as means with minimum/maximum values and are presented in percent (0-100%). The evaluation of success is also in percent (100%, as expected). SEs 2, 3, 4, 9, 12: Data from the first interview. SEs 1, 6, 7, 8, 10, 11: Data from the last (main) interview.

*Data from one student in the SE is missing

** Data from the last interview; only two of five students represented in interview

Discussion. The fact that all SEs contained all roles may possibly explain the high evaluation of collaboration in most SEs based on Adizes’s (1976; 2004) model suggesting all roles are important to reach a common goal. This result corresponds to the students’ reflections in interviews and a Norwegian study by Brattbakk and Martinsen (2014). Interestingly, according to Main (2010) and Sturner, Bishop, and Lenhart (2016), SE teams where students have divergent goals

and expectations show lack of good collaboration. In our study however, most team members had rather similar goals and expectations. Most students’ main goal was to learn from the SE process, and they anticipated that both themselves and the others would contribute and put down an effort, which may indicate a focus on collaboration and distribution of tasks.

Another factor of note may be the specific presence of integrator characteristics in all groups, which Adizes (1976; 2004) highlights as significant for achieving collaboration and thus goals. SE7 had the lowest evaluation of ownership to business idea and success and among the lowest evaluation of collaboration. This team did not prioritise the SE very high, and during the last interview, two of the students mentioned that motivation and thus collaboration probably could have increased if they had focused more upon doing nice things together. Most students in this team expressed that they identified themselves more with the integrator role in their spare time but less in the SE setting. One student suggested that the collaboration could have been more effective if the integrator was more present in the team; however, the overall data are not conclusive in this respect. Importantly, most groups were friend groups, and the fact that collaboration difficulties could potentially lead to less SE success and lower grades may have contributed to the good collaboration in most SEs.

It seems that most SEs distributed tasks according to each students' strengths and abilities, which may correspond to the Adizes's (1976, 2004) four team roles. Furthermore, several students expressed that their role adapted to what was needed in the SE. A student in SE1, for example, noticed the lack of team progress and started automatically to take the lead and became more resolute, despite being an administrator. This SE lacked a clear producer, thus the student adapted to the situation, as this student was the one with the most producer characteristics in this team.

No obvious trends regarding team roles and success rate of SEs can be seen. Out of the six SEs with complete datasets, a trend may however be observed regarding ownership to business idea, collaboration, and success (Table 2). SE1 and SE7 ranked both

ownership, collaboration and success rate relatively low when compared to other SEs. SE10 had high collaboration, yet a relatively low ownership and the success rate is below expectations (< 100%). Ownership to business idea may affect the success rate in SEs because students with high ownership to business idea prioritise the SE and work hard, which is essential to achieve success. Earlier studies indicate that focusing on teamwork rather than finding the best business idea might actually obstruct success (Carson, Tesluk, & Marrone, 2007; Prewitt, Walvoord, Stilson, Rossi, & Brannick, 2009). After all, the goal in the entrepreneurship education is not primarily to achieve success but to learn from the SE process.

Occurrence of Disagreements and Conflicts in Student Enterprises

It is not surprising that the evaluation of team collaboration varies among SEs as working together may present challenges both professionally and relationally (Halfhill et al., 2005; Taylor, 2011; Zhou et al., 2015). SEs 7, 8, and 10 did not report any conflicts or disagreements, but SEs 1, 2, 3, 6, 9 and 12 expressed that small disagreements had occurred. Students in SE4 communicated that disagreements did occur in the beginning, and in the later phase, even loud discussions arose. Collaboration had been difficult over time, but they were still friends. SE11 reported conflicts at start, but the collaboration improved when they decided upon the business idea.

In some SEs, e.g. SE8 and SE11, the individual team role distribution was scattered, while other SEs, such as SE6 and SE7, were more aligned. To exemplify, in SE8, a dominant integrator, administrator, producer, and entrepreneur was found, while SE6 consisted of many administrators and one producer (see Figure 3).

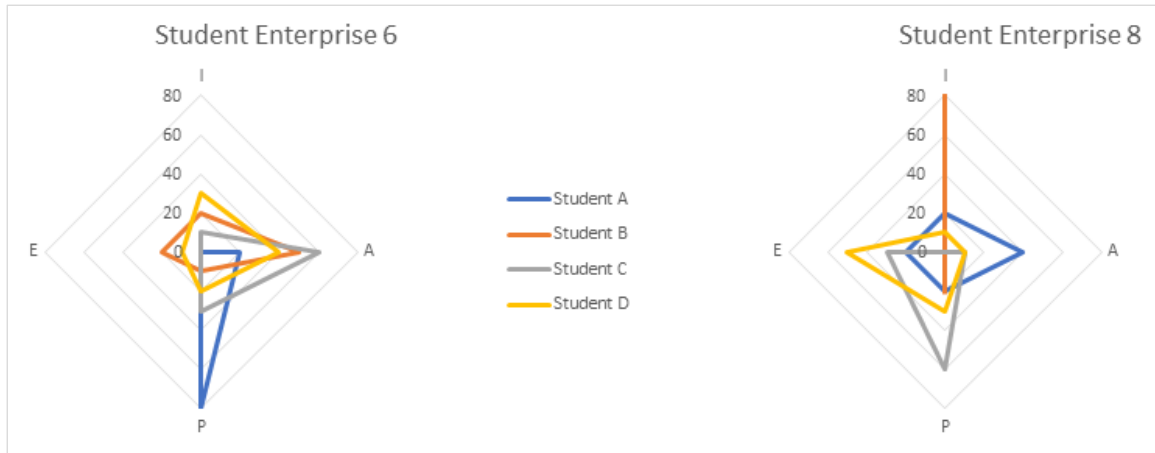


Figure 3. Individual distribution of team roles (percent) for student enterprise 8 and 6. Data from the last (main) interview. Roles are identified as I–integrator; A– administrator; P– producer; E–entrepreneur.

Discussion. Halfhill et al. (2005) showed that a great variance of personality composition in groups (roughly equivalent to different team roles in this study) affects the effectiveness negatively. In our study, no clear correlation between variance between team roles and evaluation of collaboration was observed, but it may seem that some of the SEs with very different roles or where one student stands out from the rest, experienced more conflicts. This result was observed in some but not all SEs with scattered individual roles. Yet sober discussions occurred in all SEs, and most of them reached solutions as a team rather than creating conflicts. Several students appreciated these discussions because they represented a possibility to find the best solutions. This illustrates a positive perception of discussions rather than a focus on disagreement. Students in SE6, for example, expressed that it was not negative that some students stood out from the others. It was more important to be different, and this reflects the general opinion of most SE teams.

Strengths and Weaknesses of the Study

In this study, a low drop-out rate increased validity of results. Data from the late phase interviews were more valid than the early interviews, but missing data limited our study. One of the strengths of this study was the use of mixed methods (Hesse-Bieber, 2010, p. 3–6). The researchers’ role as interviewers was clarified at the start of the interviews; although, it may potentially affect the results that one of them was the students’ teacher.

Defining oneself in different team roles may be challenging especially for young students who potentially do not know themselves very well as their personality is developing. Other aspects are that students may choose a role they want to emphasize and try to live up to, or that the interviewees wanted to appear more collaborative or team oriented than they were, as shown earlier (Srivastava & Banaji, 2011). Furthermore, many variables in the study may be difficult to estimate objectively, especially the degree of success. SEs were asked to estimate the success according to their initial expectations; hence, it may be

easier for SEs with low ambitions to achieve success. Finally, the fact that the SE provided material for an exam paper in which poor collaboration may result in a bad grade and that the evaluation of team collaboration is subjective, combined with little variance of team role data, implies caution about the generalisability of the results.

Conclusion

In this article, the influence of team composition regarding four team roles—integrator, administrator, producer, and entrepreneur—on collaboration in SEs has been investigated. One finding was that most SEs collaborated well, possibly related to the fact that all SEs contained all four team roles previously described as important in enterprise teams. However, limited variance among SEs restricts the extent to which we can focus on the importance of individual team roles for SE team collaboration. The hypothesis that SEs with four roles present would excel compared to teams with only one, two, or three roles, cannot be properly accepted based on findings in this study, as none of the SEs lacked one or more roles completely.

Overall, few disagreements and conflicts occurred in the SEs. Disagreements or potentially conflicts may, however, not necessarily diminish success because fruitful discussions may appear and increase the opportunity to reach the best solutions. Strong ownership to business idea may seem to increase the SEs' success more than high evaluation of collaboration; although, evaluation of success was highly individual.

Future Perspectives

Although achieving success is not the main focus of the curriculum initiative in SE, the finding that a strong ownership to business idea may increase success was interesting in a teaching perspective. Encouraging students to team up around a business idea that they like, believe in, and belong to, may encourage them into making a collaborative effort. Hence, students may possibly work better as a team, according to Adizes's (1976; 2004) model, and learn from their team members, which is a hallmark of cooperative learning (Laal, 2013). This effort may prevent loss of motivation and possibly secure a good team spirit and thus collaboration. In their future working life, candidates (e.g., in food and nutrition) will have to collaborate and work towards common goals and targets set by themselves or others (Fanzo et al., 2015). Although variance among students in a SE in some cases increased the conflict rate, this variance did not seem to affect rate of success. Indeed, students seemed to enjoy discussions and giving and getting input suggesting the pros outweigh the cons of a teaching practice where diversity among SE groups was encouraged. As many students pointed out that all Adizes's four roles were important in the SE team, further education should continue to encourage students to create SE teams according to these team roles, rather than teaming with their friends. Yet more research is needed to further investigate the impact of team roles on collaboration, disagreements and success in SE teams with a more varied role distribution.

References

- Aarek, I., & Ask, A. M. S. (2012). Student experiences of the value of a student enterprise programme. *Journal of the International Society for Teacher Education*, 16(1), 62–70.
- Adizes, I. K. (1976). Mismanagement Styles. *California Management Review*, 19(2), 5–20.
- Adizes, I. K. (2004). *Management/mismanagement styles. How to identify a style and what to do about it*. Santa Barbara, CA: The Adizes Institute.
- Aldrich, H. E., Carter, N. M., & Reynolds, P. D. (2004). Teams. In W. B. Gartner, K. G. Shaver, N. M. Carter, & P. D. Reynolds (Eds.), *Handbook of entrepreneurial dynamics: The process of business creation*. Los Angeles, CA: Sage
- Ask, A. S., Valand, I. U., & Aarek, I. (2019). Implementation of action plans – Did the plans end up in a drawer? *Journal of the International Society for Teacher Education*, 23(1), 27–38.
- Brattbakk, I., & Martinsen, M. F. (2014). *Personligheter i tverrfaglige team: En kvantitativ studie om samarbeid i tverrfaglige team*. (Unpublished master's thesis). Retrieved from <https://brage.bibsys.no/xmlui/handle/11250/271884> (In Norwegian)
- Carson, J. B., Tesluk, P. E., & Marrone, J. A. (2007). Shared leadership in teams: An investigation of antecedent conditions and performance. *Academy of Management Journal*, 50(5), 1217–1234. doi: 10.5465/amj.2007.20159921
- Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18(3), 301–331. doi: 10.1016/S0883-9026(02)00097-6
- European Parliament and the Council of the European Union. (2006). Recommendation of the European Parliament and of the Council. *Official Journal of the European Union*. Retrieved from <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32006H0962#document1>
- Fanzo, J. C., Graziose, M. M., Kraemer, K., Gillespie, S., Johnston, J. L., de Pee, S., ... West, K. P. (2015). Educating and training a workforce for nutrition in a post-2015 world. *Advances in Nutrition*, 6(6), 639–647. doi: 10.3945/an.115.010041
- Gillies, R. M. (2014). Cooperative learning: Developments in research. *International Journal of Educational Psychology*, 3(2), 125–140. doi: 10.4471/ijep.2014.08
- Haara, F. O., & Jenssen, E. S. (2016). Pedagogical entrepreneurship in teacher education – what and why? *Icelandic Journal of Education*, 25(2), 183–196.
- Halfhill, T., Sundstrom, E., Lahner, J., Calderone, W., & Nielsen, T. M. (2005). Group personality composition and group effectiveness: An integrative review of empirical research. *Small Group Research*, 36(1), 83–105. doi: 10.1177/1046496404268538
- Hesse-Biber, S. N. (2010). *Mixed methods research: Merging theory with practice*. New York: Guilford.
- Laal, M. (2013). Collaborative learning; elements. *Procedia – Social and Behavioral Sciences*, 83, 814–818. doi: 10.1016/j.sbspro.2013.06.153

- Lou, Y. Abrami, P., Spence, J., Poulsen, C., Chambers, B., & d'Apollinia, S. (1996). Within-class grouping: A meta-analysis. *Review of Educational Research*, 66(4), 423–458. doi: 10.3102/00346543066004423
- Main, K. (2010). Teamwork – teach me, teach me not: A case study of three Australian preservice teachers. *The Australian Educational Researcher*, 37(3), 77–93.
- Mann, L. L., & Blum, I. (2004). Entrepreneurship of dietetic program graduates. *Canadian Journal of Dietetic Practice and Research*, 65(4), 166–173.
- Norwegian Ministry of Education and Research. (2017). *The core curriculum – values and principles for primary and secondary education and training*. Retrieved from <https://www.regjeringen.no/contentassets/53d21ea2bc3a4202b86b83cfe82da93e/core-curriculum.pdf>
- Norwegian Ministry of Education and Research, Ministry of Trade and Industry & Ministry of Local Government and Regional Development. (2006). *See the opportunities and make them work – strategy for entrepreneurship in education and training 2004-2008*. Retrieved from https://www.regjeringen.no/globalassets/upload/kd/vedlegg/grunnskole/strategiplaner/see_the_opportunities_and_make_them_work_2204-2008.pdf
- Norwegian Ministry of Education and Research, Ministry of Local Government and Regional Development & Ministry of Trade and Industry. (2009). *Entrepreneurship in education and training - from compulsory school to higher education 2009-2014*. Retrieved from <https://www.regjeringen.no/globalassets/documents/action-plan-for-entrepreneurship-in-education-and-training-2009.pdf>
- Prewitt, M. S., Walvoord, A. G., Stilson, F. R. B., Rossi, M. E., & Brannick, M. T. (2009). The team personality – team performance relationship revisited: The impact of criterion choice, pattern of workflow, and method of aggregation. *Human Performance*, 22(4), 273–296. doi: 10.1080/08959280903120253
- Riebe, L., Girardi, A., & Whitsed, C. (2016). A systematic literature review of teamwork pedagogy in higher education. *Small Group Research*, 47(6), 619–664. doi: 10.1177/1046496416665221
- Saucier, G., & Goldberg, L. R. (1998). What is beyond the big five? *Journal of Personality*, 66(4), 495–524. doi: 10.1111/1467-6494.00022
- Srivastava, S. B., & Banaji, M. R. (2011). Culture, cognition, and collaborative networks in organizations. *American Sociological Review*, 76(2), 207–233. doi: 10.1177/0003122411399390
- Sturner, K. K., Bishop, P., & Lenart, S. M. (2016). Developing collaboration skills in team undergraduate research experiences. *Problems, Resources, and Issues in Mathematics Undergraduate Studies*, 27(3), 370–388. doi: 10.1080/10511970.2016.1188432
- Taylor, A. (2011). Top 10 reasons students dislike working in small groups... and why I do it anyway. *Biochemistry and Molecular Biology Education*, 39(2), 219–220. doi: 10.1002/bmb.20511
- Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press

Zhou, W., Hu, H., & Zey, M. (2015). Team composition of new venture founding teams: Does personality matter? *International Journal of Entrepreneurial Behaviour & Research*, 21(5), 673–689.

Acknowledgements

The authors of this article would like to express their deep gratitude to Dr. Katie Weir at Griffith University for valuable and much appreciated feedback in the writing process. Also, a sincere thank you goes to remaining participants of the paper group at ISfTE 38th Annual Seminar in Japan for educating discussions and helpful comments on the paper draft. Finally, the authors would like to acknowledge all the students who participated in this study.

Authors

Ida Ulrikke Valand is an assistant professor and PhD student at UiA, Norway. She lectures in nutrition and entrepreneurship. The aim of the doctoral research is to investigate the diet of university students and use this information to develop a course in diet literacy and food preparation skills.

Tormod Bjørkkjær holds a PhD in nutrition from University of Bergen, Norway (2009), and researches mainly school and kindergarten food issues. Scientific interests are e.g. entrepreneurship, health promotion, and sustainability. He has experience with teaching teacher education students in home economics and currently teaches public health and nutrition students at UiA.