

Final Report for Teaching Development Project

Project title:

Learning Knowledge Application in the Real World: Coursework as a Platform for Students to Collaborate with Practitioners

Project leader:

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Commencement date:

1 August 2013

Completion date:

30 September 2015

Project duration:

26 months

Activities that were carried out:

There were two runs of this project. The first run was in Fall 2013, conducted in SOSC2210 Social Psychology. The second run was in Spring 2015, conducted in a brand new course—SOSC3000D Psychology of Environmental Sustainability. Below we will report how the two runs were conducted.

Fall 2013, SOSC2210 Social Psychology

A total of 67 students participated in this project. The course instructor was Kevin Kim-Pong Tam. The assigned teaching assistant for the course was William Chan. Vivien Pong, as a project member, was also involved in all stages of the project. The three members formed a project team to execute the project. The project went through the following stages.

1. Instructor designating a real-world issue:

The real-world issue designated by the instructor for SOSC 2210 (Fall 2013-14) was promoting environmental protection in Hong Kong. Four environmental organizations were invited to participate in the teaching project; each organization named one specific environmental issue of their interest.

2. Students completing pretest survey and forming teams:

Students reported their views on environmental issues and social psychology on a pretest survey. At the end of the survey, students indicated their preference regarding four environmental issues. In total 12 teams (of five to six students) were formed based on students' preferences (each team comprised students sharing similar preference and coming from different academic backgrounds). As a result, 18 students collaborated with WWF Hong Kong,

18 students collaborated with the HKUST Sustainability Unit, 15 students collaborated with Ocean Park, and 16 students collaborated with The Conservation Association. Each organization worked with three student teams.

3. Practitioners providing orientation:

Each organization met its student teams at an introductory presentation. In this orientation the practitioners from the organization introduced their organization, the issue, their past works, and their expectations for students.

Organization 1: WWF Hong Kong—Protecting Chinese White Dolphins

WWF hosted a meeting with their student teams and the project team on October 3rd, 2013 (Thursday) at their office in 15/F, Manhattan Centre, 8 Kwai Cheong Road, Kwai Chung. WWF first introduced the challenges and threats that Chinese White Dolphins were facing. The practitioner then introduced their PR campaign, Vote Ruby, to the student teams and how it aimed to urge the government to designate the surrounding waters of the West Lantau and Soko Islands as marine parks so that it could help to conserve Hong Kong's Chinese White Dolphins. WWF also discussed some possible actions that the public could do to help Vote Ruby, some major activities they had held so far and the current living environment for Chinese White Dolphins. Finally, WWF talked about things they had been doing for the conservation of Chinese White Dolphins through education and programs implementation.

Organization 2: The HKUST Sustainability Unit —Reducing food waste

The HKUST Sustainability Unit hosted a meeting with their student teams and the project team on October 4th, 2013 (Friday) at HKUST campus. The Sustainability Unit first introduced their mission at HKUST. The unit then discussed the food waste project at HKUST and the overall food waste situation in Hong Kong and around the world. Two past studies done at HKUST were discussed with the students and these studies focused on students' attitude on the food waste issue at the school campus. Finally, the Sustainability Unit talked about some behavioral change projects that had been done in other universities in Hong Kong and what kind of behaviors students could do to help solving the food waste problem.

Organization 3: Ocean Park—Reducing marine plastic debris

Ocean Park hosted a meeting with their student teams and the project team on October 5th, 2013 (Saturday) at Ocean Park. Ocean Park first introduced their value and education mission, showing how they inspired guests' appreciation for nature and conservation actions through the park's exhibits and presentations. The staff member then introduced the marine debris issue in Hong Kong, the life cycle of marine plastic and Ocean Park's reduce marine debris campaign goal. Student teams then watched a video showing how marine plastic could affect animals in a remote island. Finally, Ocean Park explained their campaign goals of reducing marine plastic debris and programs they had been doing so far to improve this conservation issue.

Organization 4: The Conservation Association—Preventing wild fire

The Conservation Association hosted a meeting with their student teams and the project team on October 2nd, 2013 (Wednesday) at The Conservation Association office. The Conservation Association first introduced their "No Hillfire Campaign", which was run every Ching Ming and Chung Yeung Festival to spread the message of "No Hillfire" throughout Hong Kong. The

unit explained the causes of hillfire and the fact that Hong Kong was very unlikely to have any natural hillfire. Finally, the unit showed students some photos from previous years' "No Hillfire" campaign.

4. Students collaborating with practitioners and the teaching team:

Students designed strategies to tackle the target issue. They identified some psychological concepts that they considered to be useful from the course or academic literature. In the process, they sought theoretical advices from the teaching team (a consultation meeting was offered for each team), and informational support from the supervising organization.

5. Students presenting works:

At the end of the course, four presentation sessions were held, each for one organization and the respective student teams. Students presented their works and received comments and suggestions from three parties: the supervising organization, other student teams working under the same organization, and the teaching team. Each participating organization attended their own session only.

6. Assessment:

After the presentation session, the instructor compiled a list of comments and suggestions for each team. Students then addressed these comments and suggestions by writing a response paper. Students' overall performance (the presentation and the response paper combined) was graded by the instructor.

7. Students completing posttest survey:

Students reflected on their learning experience in the team project on a posttest survey. They reported their self-efficacy, learning strategies, transferability of the learning style gained from this coursework to other courses in the future. They were also asked to provide comments as to which elements of the coursework they would like to see maintained and which elements they would like to see improved. Students also completed measures about their views on environmental issues and social psychology which they had completed in the pretest survey.

8. Practitioners completing evaluation survey:

Practitioners from the participating organizations reported their views toward the team project. They evaluated the student teams they supervised, the benefits of the project to them and their organization, and finally the possibilities of future collaboration. They also provided comments as to which parts they enjoyed the most and which elements they thought could be improved in the project.

Spring 2015, SOS3000D Psychology for Environmental Sustainability

A total of 34 students participated in this project. The course instructor was Kevin Kim-Pong Tam. The assigned teaching assistant for the course was Vivien Pong. William Chan, as a project member, was also involved in all stages of the project. The three members form a project team to execute the project. The project went through the following stages.

1. Instructor designating a real-world issue:

The real-world issue designated by the instructor for SOSC 3000D (Spring 2014-15) was promoting environmentally friendly behavior in the HKUST campus. The project team and the HKUST Sustainability Unit jointly identified three specific behaviors and invited three corresponding frontline units to participate in this project. The three behaviors were: using the less rice option (LG1 canteen); recycling metal cans in a refreshment zone (Library); and reducing excessive printing in a computer barn (ITSC).

2. Students completing pretest survey and forming teams:

Students reported their views on environmental issues and psychology of environmental sustainability in a pretest survey. At the end of the survey, students indicated their preference regarding the three behaviors. Based on the survey results, we grouped students in teams of five to six (each team comprised students sharing similar preference and coming from different academic backgrounds). Special care was taken to evenly distribute those students with environment-related majors across teams. In total, six teams were formed. Ten students in two teams collaborated with the LG1 canteen, one team of six students collaborated with the library, and 18 students in three teams collaborated with the ITSC. The HKUST Sustainability Unit co-supervised the teams with each frontline party.

3. Practitioners providing orientation:

During the orientation, the practitioners from the HKUST Sustainability Unit introduced to students about the three behaviors and the environmental issues behind, with an emphasis on the obstacles and challenges in working on these issues from their past experience.

4. Students collaborating with practitioners and the teaching team:

Students designed intervention strategies to promote the target behavior based on some psychological concepts that they considered to be useful from the course or the academic literature. In the process, they sought theoretical advices from the teaching team (a consultation meeting was offered for each team), and informational support from the supervising practitioners.

5. Students presenting proposal:

At the 11th week of the semester, students presented their proposed intervention strategies and received comments and suggestions from three parties: the representatives from the frontline units, the practitioners from the HKUST Sustainability Unit, and the teaching team. The representatives from the frontline units attended their own session only.

6. Students implementing what they proposed:

After the presentation session, the instructor compiled a list of comments and suggestions for each team. Students then revised their proposed intervention strategies. With the help of the HKUST Sustainability Unit and the frontline units, students implemented their intervention strategies in the corresponding sites on the campus. They assessed the effectiveness of their strategies based on the research methods learned in the course (a consultation meeting was offered for each team).

7. Students presenting results:

At the end of the semester, students presented their findings and observations from their implementation. They received comments and suggestions from the same three parties: the representatives from the corresponding frontline units, the practitioners from the Sustainability Unit, and the teaching team.

8. Assessment:

The instructor graded each student team based on their performance in the two presentations (proposal presentation and final presentation). This assessment was independent of the actual effectiveness or impacts of the students' intervention strategies.

9. Students completing posttest survey:

Students reflected on their learning experience in the team project on a posttest survey. They were also asked to provide comments as to which elements of the coursework they would like to see maintained and which elements they would like to see improved. Students also completed measures about their views on environmental issues and psychology of environmental sustainability which they had completed in the pretest survey.

10. Practitioners completing evaluation survey:

Practitioners from the HKUST Sustainability and the frontline units reported their views toward the team project. They evaluated the student teams they supervised, the benefits of the project to them and their unit, and finally the possibilities of future collaboration. They also provided comments as to which parts they enjoyed the most and which elements they thought could be improved in the project.

Effectiveness of planned actions and evidences to support your claim.

Below we will report some evidences of the effectiveness of the project in each run.

Fall 2013, SOSOC2210 Social Psychology

1. Students' Views on Environments Issues and the Course Subject:

65 students completed the pretest and 46 students completed the posttest. When students were asked about their views toward environmental issues and social psychology, students showed positive feedback in general. Not only did students show improvement in environmental protection awareness and their perception of initiating a behavioral change, students also showed a significantly higher level of interest in social psychology. When students were asked to evaluate the team project, students generally provided positive feedback about the project and thought they enjoyed participating in the project. Majority of the students chose to participate again in a similar project if it was offered in another course.

Students' Pretest and Posttest Result Comparison—Views towards Environmental Issues

There were 18 questions in this part of the survey. These 18 questions were categorized into the following five areas (see Appendix A) in order to measure students' views towards environmental issues, 1) action efficacy, 2) perceived threat of environmental problems, 3) egoistic values, 4) altruistic values, and 5) biospheric values. A comparison of scores from

each category in the pretest and posttest is shown in Figure 3.

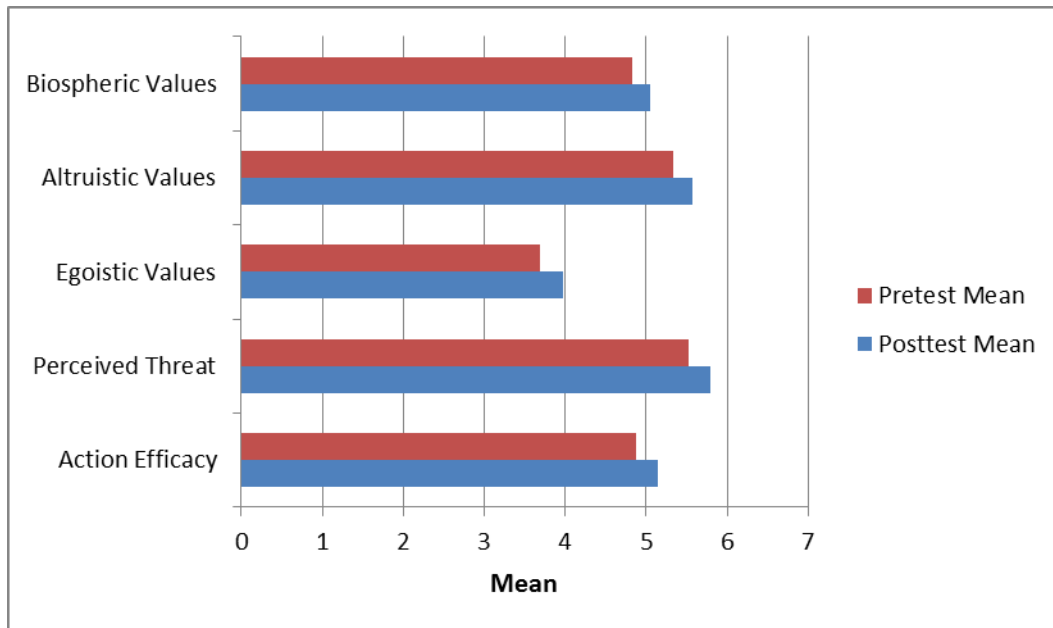


Figure 1
Comparison of Mean in Students' Views towards Environmental Issues

As shown in Figure 1, the scores in the posttest showed a positive change in all five areas. To further evaluate the effect of the team project, paired sample t-tests were conducted for each factor in order to compare students' response in the pretest and posttest. The statistical analysis is shown in Table 1.

Table 1.
Paired Sample T-test for Views towards Environmental Issues

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 efficacy_post - efficacy_pre	.26812	1.13010	.16662	-.06748	.60372	1.609	45	.115
Pair 2 threat_post - threat_pre	.26812	.89061	.13131	.00364	.53259	2.042	45	.047
Pair 3 egoistic_post - egoistic_pre	.28261	1.42752	.21048	-.14131	.70653	1.343	45	.186
Pair 4 altruistic_post - altruistic_pre	.23551	.79082	.11660	.00066	.47035	2.020	45	.049
Pair 5 biospheric_post - biospheric_pre	.22283	1.07913	.15911	-.09764	.54329	1.400	45	.168

As shown in Table 1, two out of five factors (as highlighted) showed significant differences in the statistical analysis. The first factor (perceived threat of environmental problems, with a $p < 0.05$) measured students' awareness on how their action could pose threats to the environment. The significant difference shown in the pretest and posttest showed that after the team project, students were more aware of the fact that their action could sometimes harm the environment.

The second factor that showed a significant difference was altruistic values, with a $p < 0.05$. This factor measured students' level of selflessness and concern about others. The significant difference in the pretest and posttest showed that after the team project, students had improvement in selflessness and compassion. This result was important because being more altruistic meant that students were more aware of the importance of devoting their help on environment protection.

These results showed that students had a positive change in their perception on environmental protection. They became more aware of the importance of protecting environment and how closely related they actually were with nature. Although students did not show significant differences in the three other factors after the teaching project, the team project had definitely broadened students' horizon in environmental protection in Hong Kong.

Students' Pretest and Posttest Result Comparison—Views towards Social Psychology

There were twelve questions in this part of the survey. These twelve questions were categorized into the following three factors (see Appendix B) in order to measure students' views towards social psychology: 1) appreciation of scientific basis of social psychology, 2) interest in social psychology, and 3) application of social psychology. A comparison of scores from each category in the pretest and posttest is shown in Figure 2.

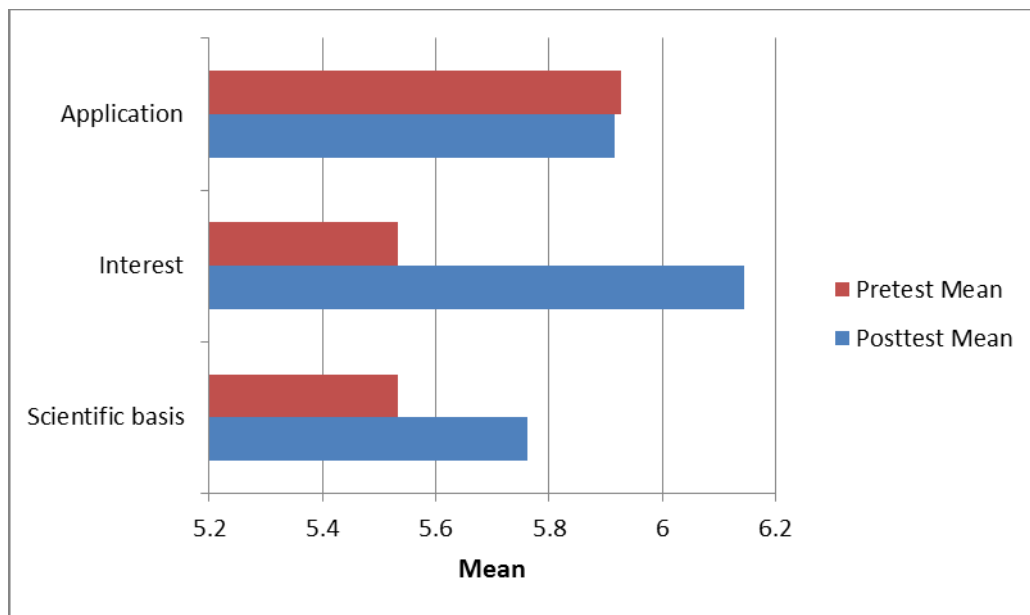


Figure 2.
Comparison of Mean in Students' Views towards Social Psychology

As shown in Figure 2, the scores in the posttest showed positive change in students' interest in social psychology and appreciation of scientific basis of social psychology. To further evaluate the effect of the team project, paired sample t-tests were conducted for each factor in order to compare students' response in the pretest and posttest. The statistical analysis is shown in Table 2.

Table 2.
Paired Sample T-test for Views towards Social Psychology
Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 6 socpsy_scientific_post - socpsy_scientific_pre	.22826	1.17713	.17356	-.12130	.57782	1.315	45	.195
Pair 7 socpsy_interest_post - socpsy_interest_pre	.61232	.98573	.14534	.31959	.90505	4.213	45	.000
Pair 8 socpsy_application_post - socpsy_application_pre	-.01139	.83500	.12311	-.25935	.23658	-.092	45	.927

As shown in Table 2, the factor that showed a significant difference was students' interest in social psychology (highlighted, with a $p < 0.00$). This result showed that the present teaching project could successfully enhance students' interest in the course subject. Although the team project did not show a significant change in students' appreciation and application ability in social psychology, some students reported that the project enhanced their ability in applying social psychology in everyday life.

2. Students' Evaluation of the Team Project:

In the posttest, students were asked eleven questions (see Appendix C) on how they thought about the team project in terms of the following areas, 1) opportunity, 2) help from practitioner and instructor, 3) understanding social psychology, 4) application ability, 5) interest in social psychology, 6) relevance, 7) satisfaction, 8) future choice, 9) workload, and 10) difficulty. The score distribution for each area is shown in Figure 3.

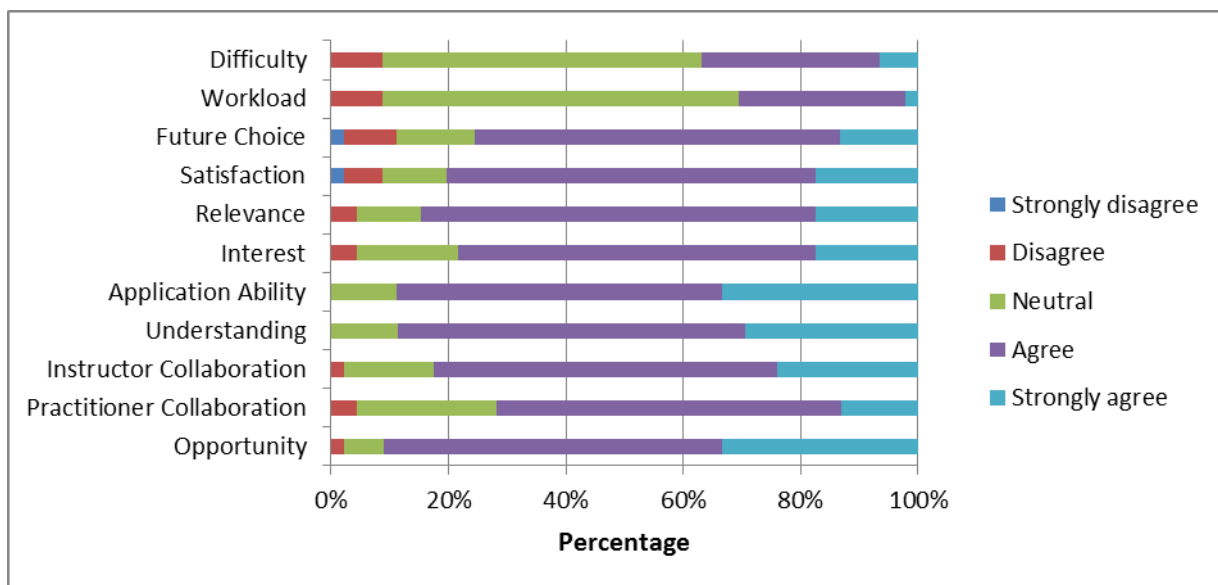


Figure 3
Students' Evaluation of the Team Project

As shown in Figure 3, most students had positive feedback for the team project. A large number of students were satisfied with the team project in terms of all the areas mentioned above. The mean score for each area is shown in Table 3.

Table 3.
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Opportunity	45	2	5	4.22	.670
Practitioner	46	2	5	3.80	.719
Instructor	46	2	5	4.04	.698
Understanding	44	3	5	4.18	.620
Apply_ability	45	3	5	4.22	.636
Interest_psy	46	2	5	3.91	.725
Relevance_psy	46	2	5	3.98	.683
Satisfaction	46	1	5	3.87	.859
Choose_again	45	1	5	3.76	.883
Workload	46	2	5	3.24	.639
Difficulty	46	2	5	3.35	.737

As shown in Table 3, the mean score for in each area was close to the maximum score, meaning students are satisfied with the team project in general.

In general, although some students reflected that the team project was rather difficult with a heavy workload, they still agreed that this team project was a good learning experience. They had a chance to apply what they had learned in class into some real-world issues and the project had enhanced students' interest in social psychology. Students also enjoyed learning by working with the practitioners and instructor. A large number of students (almost 80% of the class) agreed that they would participate in this kind of teaching project again in the future.

3. Practitioners' Evaluation

Evaluation of the supervised students—“What is your evaluation of the quality of the students' / works?”

WWF emphasized that although the blend of backgrounds students' diverse academic background (e.g. marketing, finance) affected the definition of the research scope (i.e. failed to distinguish an environmental campaign from a marketing campaign), this blend also allowed students to provide relevant research and comparison on their analysis of the corresponding environmental issue. The HKUST Sustainability Unit thought that students were highly motivated and their ideas were creative and showed their understanding of the presented issue. Ocean Park thought that the student teams did an excellent job since students were able to apply things they learned in the seminar to the suggestions they proposed. The Conservation Association was happy that the student teams showed great passion when providing suggestions instead of just treating this project as a regular assignment.

Evaluation of the supervised students—“What is your evaluation of the students' learning attitude and motivation?”

WWF was happy with students' learning motivation since students showed a strong sense of ownership. Students also had a positive learning attitude when they were presenting certain customized advices based on the limitation that WWF is facing. The HKUST Sustainability Unit thought that students' learning attitude and motivation was very positive. Ocean Park thought that students were motivated to learn new information even though they had little awareness on marine debris at the beginning of the seminar. Students definitely showed how much they had learned from the project as they successfully presented suggestions that matched Ocean Park's proposed objectives. The Conservation Association believed that

students did not solely treat the project as an assignment, but also made effort to provide meaningful suggestions to their corresponding conservation issue.

Evaluation of the benefits of this project to the practitioner and the organization—“To what extent do you find the students’ ideas / useful for the works of you and your organization? Any specific examples (e.g., being introduced to relevant theories or concepts, finding useful campaign ideas)?”

WWF stated that students’ ideas were very creative. Students’ suggestions on using the social media and event organizing ideas showed they took good advantages on their role as university students. The HKUST Sustainability Unit thought that students were familiar with the younger generations’ mindsets. The unit also commented that some teams’ ideas were creative and possible to be implemented. Ocean Park thought that some ideas from students were very useful as some ideas were currently being implemented in the park. The Conservation Association thought that although some ideas suggested by students still needed more evaluation to make it practical, these ideas were very interesting and inspiring (e.g. Facebook "check-in for good behavior" campaign).

Evaluation of the benefits of this project to the practitioner and the organization—“To what extent do you consider this project a useful channel for you and your organization to influence young people?”

WWF believed that this project was an extremely useful platform for them to promote their conservation work for the university students, as students were required to internalize certain background knowledge, NGO campaigning work, and the mentality of the mass public of the less familiar environmental conservation topics (e.g. Chinese White Dolphins). The HKUST Sustainability Unit emphasized that it was a great opportunity for their unit to be involved in the project since students could really contribute and address the sustainability issues on campus. Ocean Park thought that this project was a great channel for them to influence young people. Although Ocean Park did not adopt every suggestion proposed by the student teams, Ocean Park believed that this project can increase students’ awareness on the issue and hoping to change students’ behavior to avoid using disposable plastic products in their daily life. The Conservation Association thought that it was a great idea to allow students to connect their own knowledge with the real world situation. They also suggested that it might be better for students to learn more about the corresponding conservation issues before ranking their preferences. This would allow The Conservation Association to connect with students who were really interested in the issue.

Evaluation of the possibilities of future collaboration—“To what extent do you want to collaborate with the / students you supervised and implement their proposed campaigns?”

WWF had fair interest to work with one of the student teams since their suggestion was based on the social media campaign and more practical. Other student teams’ suggestions were also implementable as long as they improved on information sharing and expectation management. The HKUST Sustainability Unit said that they would love to collaborate with students who initiated those ideas to implement the campaigns. Ocean Park said that one student team had made contact with them and they were undergoing some discussion on how their knowledge on conservation psychology could be directly applied onto Ocean Park’s campaign components. The Conservation Association said that they would like to work with the student teams if more time and notification is given in the future.

Evaluation of the possibilities of future collaboration—“To what extent do you want to participate in this project and supervise students again next year?”

WWF would like to participate in this project again next year since they wanted the younger generation to keep being informed with the environmental related issues. The HKUST Sustainability Unit would be happy to participate in this project again next year. Ocean Park said that they would definitely want to participate again next year since they were expanding their campaign in more marine conservation issues and this would benefit both Ocean Park and the students. The Conservation Association said that it would be a pleasure to work in this project in the future.

Evaluation of the overall comments about this project—“Overall, what do you like most about this project?”

WWF thought that this was a mutually beneficial project for both students and their organization. University students and organizations could have an exchange of ideas by breaking the default perception, learning through real-world application, and ignite new campaigns. The HKUST Sustainability Unit thought that this project allowed students to work on issues they actually like to work with, be creative and passionate on their proposal and turn their ideas into real campaign. Ocean Park thought that students could become passionate about environmental issues and apply Psychology concepts onto behavioral change initiatives. The Conservation Association liked their interaction with students and the way their organization was inspired by new ideas in terms of conservation psychology.

Evaluation of the overall comments about this project—“Overall, what needs to be improved in this project?”

WWF suggested that students could have more information on the organizational structure, boundary, limitation and brand DNA in order to help manage students' expectation. Students could have an option to take part in some organizations' activities so that they could have some experiential learning experience. The HKUST Sustainability Unit was really happy about the project. If the project ideas were implemented in the future, these cases can be shared with project partners and students for inspiration. Ocean Park thought that it would be great to incorporate an in-park session for students to actualize the ideas they suggested. This could help students to get a better picture in a real context. The Conservation Association had not provided any suggestion for improvement.

Spring 2015, SOSC3000D Psychology for Environmental Sustainability

1. Students' Views on Environmental Issues and the Course Subject:

Twenty eight students completed both the pretest and the posttest. When students were asked about their views toward environmental issues and psychology of environmental sustainability, students showed positive feedback in general. Students showed a positive change in their attitude toward preserving the natural environment and their efficacy in protecting the environment. Students also showed a more positive view on the importance and relevance of psychology to both real-world situations and their everyday life. When students were asked to evaluate the team project, students generally provided positive feedback about the project and thought they enjoyed participating in the project. Overall, they reported a high degree of satisfaction for their learning experience in this project.

Students' Pretest and Posttest Result Comparison—Views towards Environmental Issues

There were 22 questions in this part of the survey. These 22 questions were categorized into the following three areas (see Appendix D) in order to measure students' views towards environmental issues, 1) attitude toward preserving the natural environment (*preservation*), 2) attitude toward utilizing the natural environment for human needs (*utilization*), and 3) efficacy belief (*efficacy*). These scores ranged from -3 to 3. A comparison of scores from each category in the pretest and posttest is shown in Figure 4.

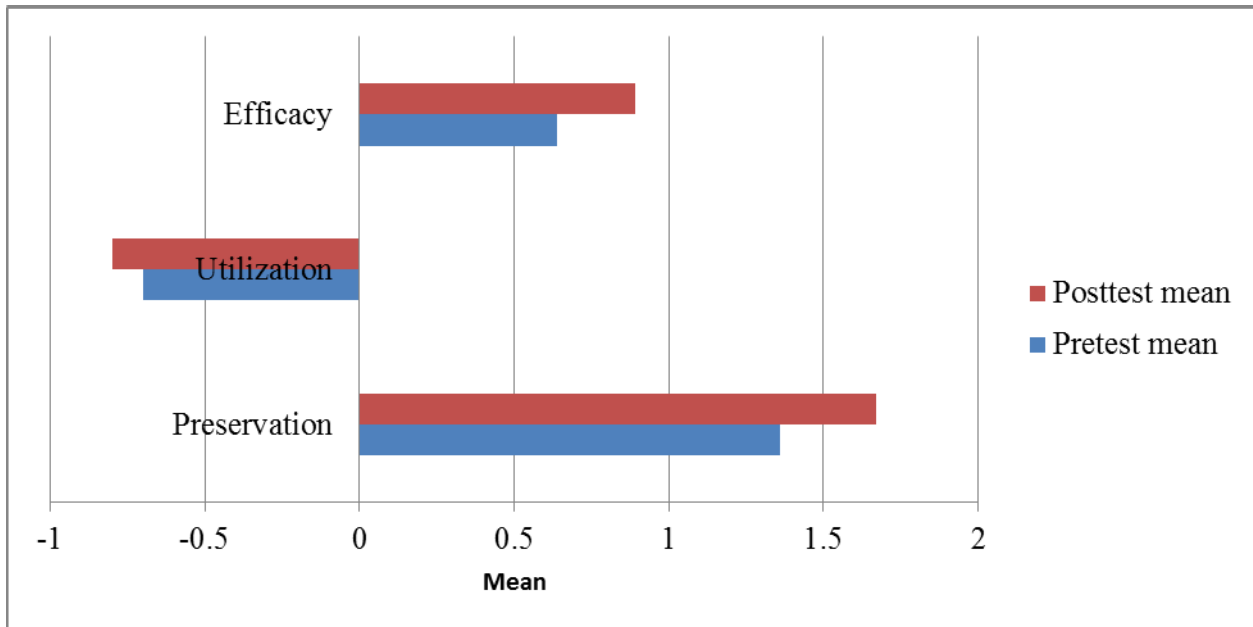


Figure 4
Comparison of Mean in Students' Views towards Environmental Issues

As shown in Figure 4, the scores in the posttest showed a positive change in all three areas. To further evaluate the effect of the team project, paired sample t-tests were conducted for each factor in order to compare students' response in the pretest and posttest. The statistical analysis is shown in Table 4.

Table 4.
Paired Sample T-test for Views towards Environmental Issues

	Pretest		Posttest		Pretest - Posttest			
	Mean	SD	Mean	SD	Mean difference	SE	t-value	p-value
Preservation	1.36	0.45	1.67	0.57	-0.31	0.12	-2.61	.015
Utilization	-0.70	0.89	-0.80	1.00	0.09	0.19	0.49	.625
Efficacy	0.64	0.94	0.89	0.98	-0.25	0.20	-1.25	.222

As shown in Table 4, preservation (as highlighted) showed a significant difference in the statistical analysis (with a $p < .05$). The significant difference shown in the pretest and posttest showed that after the team project, students showed a more positive attitude toward preserving the natural environment. Such a positive attitude is important for fostering students' intention to protect the natural environment. Although students did not show significant differences in the two other factors after the teaching project, the team project had definitely broadened students' horizon in environmental protection in Hong Kong.

Students' Pretest and Posttest Result Comparison—Views towards Psychology of

Environmental Sustainability

There were ten questions in this part of the survey. These ten questions were categorized into the following three factors (see Appendix E) in order to measure students' views towards psychology of environmental sustainability: 1) appreciation of scientific basis of psychology of environmental sustainability (*scientific basis*), 2) interest in psychology of environmental sustainability (*interest*), and 3) application of psychology of environmental sustainability (*application*). These scores ranged from -3 to 3. A comparison of scores from each category in the pretest and posttest is shown in Figure 5.

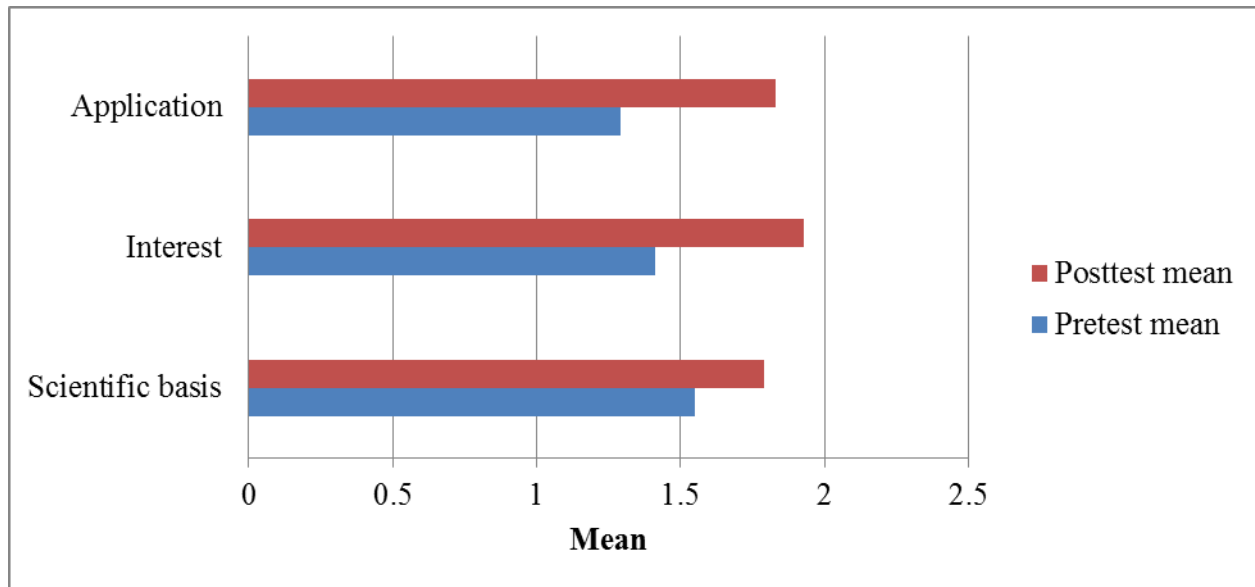


Figure 5.
Comparison of Mean in Students' Views towards Social Psychology

As shown in Figure 5, the scores in the posttest showed positive changed in all three areas. To further evaluate the effect of the team project, paired sample t-tests were conducted for each factor in order to compare students' response in the pretest and posttest. The statistical analysis is shown in Table 5.

Table 5.
Paired Sample T-test for Views towards Psychology of Environmental Sustainability

	Pretest		Posttest		Pretest - Posttest			
	Mean	SD	Mean	SD	Mean difference	SE	t-value	p-value
Scientific basis	1.55	0.83	1.79	0.82	-0.23	0.21	-1.12	.271
Interest	1.41	1.13	1.93	0.87	-0.52	0.18	-2.95	.006
Application	1.29	0.90	1.83	0.72	-0.55	0.14	-3.80	.001

As shown in Table 5, the factor that showed a significant difference was students' interest in psychology of environmental sustainability and the application of it (highlighted, with $ps < .01$). These results showed that the present teaching project could successfully enhance students' interest in the course subject and their ability in applying psychology in everyday life and solving real-world problems.

2. Students' Evaluation of the Team Project:

In the posttest, students were asked nine questions (see Appendix F) on how they thought about the team project in terms of the following areas, 1) enhanced their understanding of psychology of environmental sustainability (*understanding*), 2) enhanced their ability to suggest solutions to real-world environmental problems with reference to psychology (*real-world solution*), 3) enhanced their interest in psychology (*interest*), 4) enhanced their appreciation of the relevance of psychology to environmental issues (*relevance*), 5) collaboration with the frontline environmental practitioners helped them learn (*collaboration*), 6) gave them opportunity to learn (*learning*), 7) their overall satisfaction with the learning experience (*satisfaction*), 8) workload of the project (*workload*), and 9) difficulty of the project (*difficulty*). The score distribution for each area is shown in Figure 6.

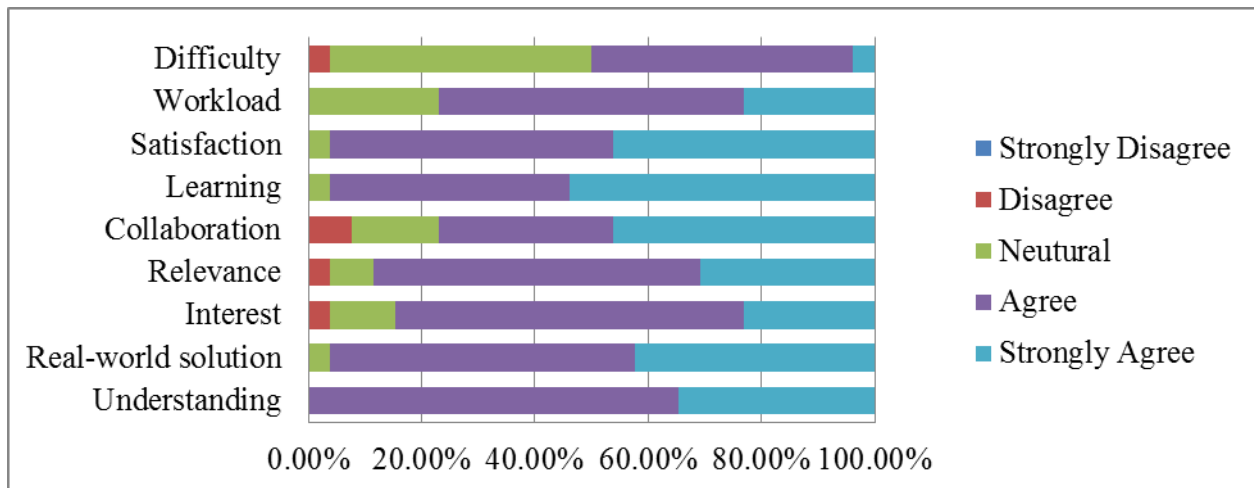


Figure 6
Students' Evaluation of the Team Project

As shown in Figure 3, most students had positive feedback for the team project. A large number of students were satisfied with the team project in terms of all the areas mentioned above. The distribution and mean score for each area is shown in Table 6.

Table 6.
Descriptive statistics

	Strongly Disagree (-2)	Disagree (-1)	Neutral (0)	Agree (1)	Strongly Agree (2)	Mean	SD
Understanding	0	0	0	17 (65.4%)	9 (34.6%)	1.35	0.49
Real-world solution	0	0	1 (3.8%)	14 (53.8%)	11 (42.3%)	1.38	0.57
Interest	0	1 (3.8%)	3 (11.5%)	16 (61.5%)	6 (23.1%)	1.04	0.72
Relevance	0	1 (3.8%)	2 (7.7%)	15 (57.7%)	8 (30.8%)	1.15	0.73
Collaboration	0	2 (7.7%)	4 (15.4%)	8 (30.8%)	12 (46.2%)	1.15	0.97
Learning	0	0	1 (3.8%)	11 (42.3%)	14 (53.8%)	1.50	0.58
Satisfaction	0	0	1 (3.8%)	13 (50%)	12 (46.2%)	1.42	0.58
Workload	0	0	6 (23.1%)	14 (53.8%)	6 (23.1%)	1.00	0.69
Difficulty	0	1 (3.8%)	12 (46.2%)	12 (46.2%)	1 (3.8%)	0.50	0.65

Note. The scale point for Satisfaction, Workload, and Difficulty ranged from Very Dissatisfied to Very Satisfied, Very light to Very Heavy, and Very Easy to Very difficult, respectively.

As shown in Table 6, most of the students reported agreed or strongly agreed for all questions, meaning students are satisfied with the team project in general. In general, although students also reflected that the team project was rather difficult with a heavy workload, they still agreed that this team project was a good learning experience. They had a chance to apply what they had learned in class into some real-world issues and the project had enhanced students' interest in psychology. Students also enjoyed learning by working with the practitioners and instructor.

3. Practitioners' Evaluation

Evaluation of the supervised students—“What is your evaluation of the quality of the students' works?”

In general, practitioners had positive feedback on students' works. Representative from ITSC thought that the students did provide good and feasible suggestions for reducing excessive printing, and ITSC would like to review and implement some of the students' useful ideas. Representative from the Sustainability Unit considered the students' work very impressive in all aspects, including applying psychological concepts, having creative design for the intervention materials (so as to maximize the effectiveness of the work), and using multiple ways to evaluate the work (e.g., conducted surveys and got relevant figures from the corresponding organization). Overall, the Sustainability Unit thought that the students' work met the project goal.

Evaluation of the supervised students—“What is your evaluation of the students' learning attitude and motivation?”

Representatives from both ITSC and Sustainability Unit thought that the students were very passionate, hardworking, and flexible enough to find the solution for the problem. ITSC noted that the students were not only just working for the course but also wanted to contribute to the HKUST green environment.

Evaluation of the benefits of this project to the practitioner and the organization—“In what way do you find the students' ideas / useful for the works of you and your organization? Any specific examples (e.g., being introduced to relevant theories or concepts, finding useful campaign ideas)?”

Representative from ITSC considered the printing guide useful for student to learn how to print in environmental friendly way, and the ITSC might incorporate it into their website. Representative from Sustainability Unit considered the application of the psychological concepts social norm and identity approach useful. In particular, the Sustainability Unit found the application of injunctive norm (socially disapproved) and descriptive norm relevant and useful. The LG1 canteen manager also liked the students' work and would like to keep some of the posters for long term use.

Evaluation of the possibilities of future collaboration—“To what extent do you want to collaborate with the students you supervised and implement their interventions?”

In general, practitioners were eager and love to work with the students to further develop the interventions. The Sustainability Unit would love to collaborate with the students to apply the

design to other outlets/slots on campus where applicable.

Evaluation of the possibilities of future collaboration—“To what extent do you want to participate in this project and work with students again next year?”

Representatives from both ITSC and Sustainability Unit expressed their keen support for the continuation of the project.

Other comments – “Do you have other comments about this project?”

ITSC thought that the project was good for both students and administrators to understand how they could influence others to save the environment. The Sustainability Unit suggested that the project should allow a longer period for the intervention execution such that the outcome and evaluation would be more effective. Overall, the Sustainability Unit considered the project as an excellent demonstration to the university, for how we could utilize the campus as a learning laboratory with actual outcome and evaluation.

Difficulties and problems encountered (their causes and suggested ways to deal with them):

Most aspects of the project were smooth, largely thanks to the flexibility and kind support of all the participating organizations and units in coordinating dates and their guidance to students. Students were also enthusiastic about the subject. It was a success overall.

The only hiccups we encountered were in the part regarding using less rice option (with LG1 canteen) in the second run. Logistically, we were not aware of the campus regulations in terms of posting signs and posters in the LG1 canteen area, which resulted in some delay in implementation with one of the student teams. We had immediately provided assistance and made arrangements to accommodate the need of this specific team. LG1 canteen also had some constraints due to their corporate regulations. Perhaps in the future, we will re-evaluate collaboration with commercial/for-profit companies in student projects because the time and efforts required may exceed our expectations for being only one of the course assessment items that is to be completed within a semester.

CELT’s contribution to the project:

Organized meetings and documented progress;

Provided suggestions to the project team on instructional design, content development and evaluation;

Provided support to the project team on analyzing data and writing up evaluation reports

Appendix A

Pretest Survey—Students' Views towards Environmental Issues (First run)

Action efficacy (3 items combined)

1. My actions in protecting nature can have meaningful impact.
2. I feel confident that my actions to help save the natural environment can make a difference.
3. What I do can be effective in protecting the natural environment.

Perceived threat of environmental problems (3 items combined)

1. If things continue on their present course, we will soon experience a major ecological catastrophe.
2. When humans interfere with nature it often produces disastrous consequences. Humans are severely abusing the environment.

Egoistic values (4 items combined)

1. Social power: control over others, dominance
2. Wealth: material possessions, money
3. Authority: the right to lead or command
4. Influential: having an impact on people and events

Altruistic values (4 items combined)

1. Equality: equal opportunity for all
2. A world at peace: free of war and conflict
3. Social justice: correcting injustice, care for the weak
4. Helpful: working for the welfare of others

Biospheric values (4 items combined)

1. Preventing pollution: protecting natural resources
2. Respecting the earth: harmony with other species
3. Unity with nature: fitting into nature
4. Protecting the environment: preserving nature

Appendix B

Pretest Survey—Students' Views towards Social Psychology (First run)

Appreciation of scientific basis of social psychology (2 items combined)

1. In my view, social psychology is scientific.
2. In general, social psychological knowledge is based on scientific evidence.

Interest in social psychology (3 items combined)

1. I think social psychology is useful for me to learn.
2. It is important for me to understand social psychology.
3. I am very interested in social psychology.

Application of social psychology (7 items combined)

1. I think social psychology is relevant to everyday life.
2. Social psychology changes the way I see the world.
3. Social psychology is useful for me in understanding real-world situations and problems.
4. Social psychology is useful for me in understanding other people's behavior.
5. Social psychology helps me understand myself.
6. I often apply social psychology to understand things I encounter in everyday life.
7. I find it easy to apply social psychology to understand things I encounter in everyday life.

Appendix C

Posttest Survey—Project Evaluation Questions (First run)

1. The objective of this project is to provide an opportunity for students to develop the ability to suggest solutions to real-world problems with reference to social psychology. To what extent do you agree that this project has provided such an opportunity to you? (1 = strongly disagree to 5 = strongly agree)
2. The core feature of this project is to have students collaborate with both frontline practitioners from outside organizations, who work in the midst of real-world issues, and the course instructor. Students can acquire the real-world perspective from the former, and the academic perspective from the latter. To what extent do you agree that the collaboration with frontline practitioners has helped you learn? (1 = strongly disagree to 5 = strongly agree)
3. To what extent do you agree that the collaboration with the course instructor has helped you learn? (1 = strongly disagree to 5 = strongly agree)
4. To what extent do you agree that this project has enhanced your understanding of social psychological concepts and theories? (1 = strongly disagree to 5 = strongly agree)
5. To what extent do you agree that this project has enhanced your ability in applying social psychological knowledge to deal with real-world problems? (1 = strongly disagree to 5 = strongly agree)
6. To what extent do you agree that this project has enhanced your interest in social psychology or psychology in general? (1 = strongly disagree to 5 = strongly agree)
7. To what extent do you agree that this project has enhanced your appreciation of the relevance of social psychology to the real world? (1 = strongly disagree to 5 = strongly agree)
8. How satisfied are you with the learning experience in this project? (1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied)
9. If in another course you can choose to participate in a similar project or not, will you choose to participate? (1 = definitely will not, 2 = probably will not, 3 = neutral, 4 = probably, 5 = definitely will)
10. Compared to the projects you have completed in other courses, how would you rate the workload of this project? (1 = very light, 2 = light, 3 = just right, 4 = heavy, 5 = very heavy)
11. Compared to the projects you have completed in other courses, how would you rate the difficulty of this project? (1 = very easy, 2 = easy, 3 = fair, 4 = difficult, 5 = very difficult)

Appendix D

Pretest Survey—Students' Views towards Environmental Issues (Second run)

Attitude toward preserving the natural environment (10 items combined)

1. It upsets me to see the countryside taken over by building sites.
2. I enjoy trips to the countryside.
3. Humankind will die out if we don't live in tune with nature.
4. Society will continue to solve even the biggest environmental problems.
5. Sitting at the edge of a pond watching dragonflies in flight is enjoyable.
6. I save water by taking a shower instead of a bath (in order to spare water).
7. I always switch the light off when I don't need it.
8. We must set aside areas to protect endangered species.
9. It is interesting to know what kinds of creatures live in ponds or rivers.
10. Dirty industrial smoke from chimneys makes me angry.

Attitude toward utilizing the natural environment for human need (10 items combined)

1. Worrying about the environment often holds up development projects.
2. We need to clear forests in order to grow crops.
3. Our planet has unlimited resources.
4. Nature is always able to restore itself.
5. We must build more roads so people can travel to the countryside.
6. Only plants and animals of economical importance need to be protected.
7. Humans have the right to change nature as they see fit.
8. People worry too much about pollution.
9. Human beings are more important than other creatures.
10. We should remove garden weeds to help beautiful flowers grow.

Efficacy belief (2 items combined)

1. I feel confident that my actions to help save the natural environment can make a difference.
2. What I do can be effective in protecting the natural environment.

Appendix E

Pretest Survey—Students' Views towards Psychology of Environmental Sustainability (Second run)

Appreciation of scientific basis of psychology of environmental sustainability (2 items combined)

1. In my view, the psychology of environmental sustainability is scientific.
2. In general, knowledge in the psychology of environmental sustainability is based on scientific evidence.

Interest in psychology of environmental sustainability (2 items combined)

1. It is important for me to learn the psychology of environmental sustainability.
2. I am very interested in the psychology of environmental sustainability.

Application of psychology of environmental sustainability (7 items combined)

1. I think the psychology of environmental sustainability is relevant to everyday life.
2. The psychology of environmental sustainability changes the way I see the world.
3. The psychology of environmental sustainability helps me understand real-world situations and problems.
4. The psychology of environmental sustainability helps me understand myself and others.
5. I like to apply the psychology of environmental sustainability to understand things I encounter in everyday life.
6. I find it easy to apply the psychology of environmental sustainability to understand things I encounter in everyday life.

Appendix F

Posttest Survey—Project Evaluation Questions (Second run)

1. To what extent do you agree that this project has enhanced your understanding of psychology of environmental sustainability? (-2 = Strongly Disagree, -1 = Disagree, 0 = Neutral, 1 = Agree, 2 = Strongly Agree)
2. To what extent do you agree that this project has enhanced your ability to suggest solutions to real-world environmental problems with reference to psychology? (-2 = Strongly Disagree, -1 = Disagree, 0 = Neutral, 1 = Agree, 2 = Strongly Agree)
3. To what extent do you agree that this project has enhanced your interest in psychology of environmental sustainability or psychology in general? (-2 = Strongly Disagree, -1 = Disagree, 0 = Neutral, 1 = Agree, 2 = Strongly Agree)
4. To what extent do you agree that this project has enhanced your appreciation of the relevance of psychology to environmental issues? (-2 = Strongly Disagree, -1 = Disagree, 0 = Neutral, 1 = Agree, 2 = Strongly Agree)
5. To what extent do you agree that the collaboration with the frontline environmental practitioners in this project helped you learn? (-2 = Strongly Disagree, -1 = Disagree, 0 = Neutral, 1 = Agree, 2 = Strongly Agree)
6. To what extent do you agree that this project gave you an opportunity to learn something you cannot learn through other assignments or activities in the same course? (-2 = Strongly Disagree, -1 = Disagree, 0 = Neutral, 1 = Agree, 2 = Strongly Agree)
7. Overall, how satisfied are you with your learning experience in this project? (-2 = Very Dissatisfied, -1 = Dissatisfied, 0 = Neutral, 1 = Satisfied, 2 = Very Satisfied)
8. Compared to the projects you have completed in other courses, how would you rate the workload of this project? (-2 = Very Light, -1 = Light, 0 = Neutral, 1 = Heavy, 2 = Very Heavy)
9. Compared to the projects you have completed in other course, how would you rate the difficulty of this project? (-2 = Very Easy, -1 = Easy, 0 = Neutral, 1 = Difficult, 2 = Very Difficult)