

附件：研究資料

自主學習 與 具進展元素的課程為本 STEAM 教育

誠邀閣下參加曾寶強教授負責監督，曾寶強教授負責執行的研究計劃。他是香港教育大學科學及環境學系的教員。

研究計劃簡介

本計劃旨在開發自主學習與具進展元素的課程為本跨學科 STEAM 教育策略，進一步發展學校領導及老師於中小學整合 STEAM 教育課程的能力。方便抽樣樣本將從由教育局招募的 15 間參與學校中抽取。學校統籌負責人及老師的聯繫方式在其提交初步計劃時已向研究小組提供，以參加本計劃。

研究方法

以下人員將參與本研究：

1. 15 間參與學校的統籌負責人
2. 15 間參與學校中與 STEAM 教學科目相關的老師
3. 參與學校中有 8 間小學的學生（年齡介乎 5-12 歲）、5 間中學的學生（年齡介乎 12-15 歲）及 2 間特殊學校的學生（年齡介乎 5-15 歲），共計 1500 人。

研究步驟如下：

學校統籌負責人：前後測問卷（10 分鐘）及訪問（30 分鐘）

老師：前後測問卷（10 分鐘）及課堂觀察（40 分鐘）

學生：前後測問卷（10 分鐘），課堂觀察（40 分鐘），反思日誌，焦點小組訪談（15 分鐘）及日常上交的功課。

訪談的對話會被錄音，觀課過程會被錄影。

收集數據的額外三種方法將由上述方法得出：學校統籌負責人及老師的需求分析前測問卷；通過計劃的 STEAM 教學試驗週期進行的教師主導行動研究，以及審查老師對學生功課的評估。

潛在利益

本計劃提供校本支援，能提升教師在 STEAM 教育的競爭力。自主學習能強化學生學習及運用 STEAM 相關知識及技能。

潛在風險

學生方面，潛在風險包括關於觀課、接觸到老師對學生功課的評估、焦點小組訪談及被攝錄進錄像的擔憂。焦點小組將透過邀請或老師提名的形式組成。訪談中只會提問與學生 STEAM 學習經驗相關的問題。訪談會在圖書館或與之相似的令學生感到安全與放鬆的場所進行。如有需要，學生將由老師陪同。錄影方面，錄影過程會極其謹慎以確保不會拍攝到可識別的個人鏡頭，如面部表情。被評分的學生功課將會由老師篩選及審查以追蹤學生在 STEAM 課堂的學習情況及成果。我們將邀請老師提交有代表性的例子，亦會提醒老師作出在同意書中申明的公告：學生享有充分的權利在任何時候決定退出這項研究，更不會因此引致任何不良後果。另外，查看老師對學生功課的評估之前，我們會先徵求學校校長、老師以及家長的同意。

閣下的參與純屬自願性質。閣下享有充分的權利在任何時候決定退出這項研究，更不會因此引致任何不良後果。凡有關閣下的資料將會保密，一切資料的編碼只有研究人員得悉。

將如何發佈研究結果

研究結果將會發佈於專業講座，資源套以及提交給教育局的報告中。

如閣下想獲得更多有關這項研究的資料，請與鄧權隱先生聯絡，電話 29486702 或聯絡他的上級曾寶強教授，電話 29487664。

如閣下對這項研究的操守有任何意見，可隨時與香港教育大學人類實驗對象操守委員會聯絡(電郵：hrec@eduhk.hk；地址：香港教育大學研究與發展事務處)。

謝謝閣下有興趣參與這項研究。

曾寶強教授
首席研究員

Self-directed Learning and Curriculum-oriented STEAM Education with Progressive Components

You are invited to participate in a project supervised by Prof. Tsang Po Keung and conducted by Prof. Tsang Po Keung, who are staff of the Department of Science and Environmental Studies in The Education University of Hong Kong.

The introduction of the research

The project aims to develop the capacity of school leaders and teachers in developing curriculum-oriented STEAM educational activities with progressive components and self-directed learning strategies. Convenient samples from 15 participating schools are recruited by EDB. Contact information of school leaders and teachers are provided to the research team when they returned their preliminary plan in order to join the project.

The methodology of the research

The following groups of people will be involved in this study:

1. Leaders of 15 participating schools
2. STEAM related subject teachers of 15 participating schools
3. Students of 8 primary schools (age 5-12), 5 secondary schools (age 12-15) and 2 special schools (age 5-15), a total of about 1500 student participants

Procedure of the research will be as follows:

The school leaders: Pre-Post questionnaires (10 min.) and interviews (30 min)

The teachers: Pre-Post questionnaires (10 min.), Lesson observations (40 min)

The students: Pre-Post questionnaires (10 min.), Lesson observations (40 min), reflective journals, focus group interviews (15 min) and their assignments normally submitted to school teachers

The interviews will be audiotaped and the lesson observations will be videotaped.

Three additional methods of data collection will be derived from the above: Needs analysis from school leaders' and teachers' pre-questionnaires; Teacher directed action research through the proposed trial cycle of STEAM teaching, and scrutiny of Teacher assessment of students' work.

Potential benefits (including compensation for participation)

It provides school based support to develop teachers' competence in STEAM education while using SDL to empower students learning and applying STEAM knowledge and skills in particular.

The potential risks of the research

For students, potential risks may include worries about lesson observation, access to teachers' assessment of student work, focus groups interview and being captured on video-tape. Focus groups may be formed by invitation or teacher nominations. Only questions related to their experiential learning in STEAM will be asked. The venue for interview will be a school library corner or similar place in which students feel safe and easy. If requested, students may be accompanied by teacher where appropriate. As for video recording, utmost care will be exercised to ensure no personally identifiable video shots be taken, such as facial expressions. Student assignments with marks will be selected by teachers and be scrutinized to trace students' learning and achievement in STEAM lessons. We would ask the teachers to present representative samples and would also remind the teacher to make announcement that students have every right to withdraw from the study at any time without negative consequences as re-iterated in the consent forms. Furthermore, consent to access teachers' assessment of student work will be procured from the principal, teachers and parents.

Your participation in the project is voluntary. You have every right to withdraw from the study at any time without negative consequences. All information related to you will remain confidential, and will be identifiable by codes known only to the researcher.

How results will be potentially disseminated

The results will be potentially disseminated in the form of professional seminars, resource packs and reports to EDB.

If you would like to obtain more information about this study, please contact Mr. Tang Kuen Yan at telephone number 29486702 or his supervisor Prof. Tsang Po Keung at telephone number 29487664.

If you have any concerns about the conduct of this research study, please do not hesitate to contact the Human Research Ethics Committee by email at hrec@eduhk.hk or by mail to Research and Development Office, The Education University of Hong Kong.

Thank you for your interest in participating in this study.

Prof. Tsang Po Keung
Principal Investigator