School of Education
UNIVERSITY OF WISCONSIN–MADISON

FIDES 2.0

Four-Phase Interest in Engineering Survey: FIDES 2.0 USER GUIDE

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Acknowledgements: Funding for the development of this instrument was provided in part by the University of Wisconsin Educational Graduate Research Fellows program.

Precautions: The FIDES 2.0 survey was developed and tested for use in measuring individual interest in engineering for high school aged students. While we believe the instrument can be easily modified for other domain areas, doing so must be done with caution. Consultation with education and interest development experts in the domain area is strongly recommended before utilizing the survey in any program of research or education. Questions regarding the use of the FIDES 2.0 instrument can be directed to Joseph E Michaelis (jemichaelis@wisc.edu).

Survey Administration:

The FIDES 2.0 survey consists of 12 Likert-style items on a seven point *strongly-disagree* to *strongly-agree* scale. The survey items are presented in ordered fashion in the FIDES 2.0 pdf file. However, administration of the survey in digital form to allow for item randomization is highly encouraged. Digital administration will also allow for forced answer choices for each item, which will improve reliability. Also, the FIDES 2.0 items were tested and should continue to prove to be reliable while embedded within a larger survey that includes both demographic information and other assessments of psychological constructs. Finally, negatively phrased items were developed in conjunction with the FIDES 2.0 items, but are only intended for use in irregular response detection. These items are available upon request.

The survey consists of 6 pairs of items developed to represent each of six indicators of individual interest. The table below maps each survey item to its respective indicator.

FIDES 2.0 Instrument Items

Item Number	Indicator	Statement
1	Perseverance	I enjoy learning about engineering even when it is very difficult.
2	Perseverance	When I'm working on something in engineering that I think is interesting, I continue working even when it takes a lot of time.
3	Content Engagement	I work on engineering projects outside of school at least once a week.
4	Content Engagement	I always learn more about engineering on my own if I find it interesting
5	Personal Value	Knowing about engineering is extremely valuable to me.
6	Personal Value	I think everyone should know a lot about engineering
7	Questions	I think of my own engineering projects at least once a week.
8	Questions	I'm inspired to come up with my own engineering projects to work on when I see something in engineering that interests me.
9	Content Knowledge	I know way more about engineering than other kids I know.
10	Content Knowledge	I know a lot about the engineering topics that I find interesting.
11	SE 1	Compared to other students at my school, I am way better at doing engineering work.
12	SE 2	When engineering interests me, I am confident that I can learn about it extremely easily.

Survey Scoring:

To calculate FIDES 2.0 scale scores for individuals the following formula is recommended.

1) First calculate the mean scale score for each indicator,
2) Average a sum of scores from all indicators on the survey. This will produce scores on the 1 to 7 Likert scale equivalent, which will allow for ease of interpretation of the score.

As a reminder, FIDES scores here do not represent ordinal phases in the FPMID, as is often done in research using this model. Rather, the FIDES 2.0 scores represent a unidimensional scale score for interest as a measured construct.

Survey Testing:

The FIDES 2.0 survey was found to be a valid and reliable instrument for measuring interest in engineering. As a reference, some previous results from FIDES use are listed in the table below. The most current details on survey development, including information about validity and reliability, are available in the following paper:

Michaelis, J. E., & Nathan, M. J. (2015, June). *The Four-Phase Interest Development in Engineering Survey*. American Society of Engineering Education (ASEE 2015) Educational Research Methods (ERM) Division. Seattle, WA.

Paper available at: www.asee.org/public/conferences/56/papers/11925/download

Previous FIDES 2.0 results

Study	Sample	Domain	N	Mean	σ	α
FIDES 2.0 Testing	Urban High School - General	Engineering	145	3.23	1.21	0.89
Robotics Interest	High School Aged – Out-of-School Club	Engineering	13	5.79	0.67	0.84
Chemistry Intelligent Tutoring System*	Undergraduate – Psychology Course	Chemistry	74	2.71	1.05	0.89

Note: * FIDES 2.0 was modified to measure interest in Chemistry. These results are currently unpublished.