Centre for Human Bioethics

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Human pluripotent stem cell research and ethics

NORMAN FORD
Director, Caroline Chisholm Centre for Health Ethics, East Melbourne
Senior Honorary Research Associate
School of Philosophy and Bioethics
Monash University

Human embryonic stem (ES) cells are eagerly sought by researchers both for scientific and therapeutic purposes. They are called ES cells because they are derived from the inner cell mass (ICM) of a six-to-seven-day-old blastocyst. They are said to be pluripotent because after transplantation, their cell progeny can contribute to virtually any cell type of the body. One can intuitively see they may one day be used for therapeutic purposes by repairing damaged tissues of the human body. To enable this to occur, researchers would like to induce or coax ES cells to develop along specific pathways to form blood, cardiac or neuronal cells. Researchers are also keen to assess more accurately the safety of certain drugs when exposed to human tissues by using ES cells in order to facilitate the production of drugs for therapeutic purposes.

Respect due to human embryos

The great ethical problem encountered world-wide in the use of ES cells, however, is that human embryos are destroyed to obtain these cells. Many secular ethicists and scientists are not perturbed by this prospect. They agree that human embryos and fetuses are members of the species Homo sapiens, but deny their personhood because they show no signs of being rational and self-conscious beings who have interests, desires and a sense of the future. They do not believe human embryos have any intrinsic moral value. Helga Kuhse and Peter Singer have long argued that the only intrinsic title to respect for human embryos arises from their capacity to experience pleasure or pain:

We believe the minimal characteristic needed to give the embryo a claim to consideration is sentience, or the capacity to feel pleasure or pain. Until that point is reached, the embryo does not have any interests and, like other non-sentient organisms (a human egg, for example), cannot be harmed – in a morally relevant sense – by anything we do.2

Julian Savulescu goes further and says:

It is not only reasonable to produce embryos as a source of multipotent stem cells, but it would be morally required to produce embryos and early fetuses as a source of tissue for transplantation.3

On the other hand, there is a philosophical tradition held for over a thousand years that the human person is a subject of a rational
effective and accurate training, a critical component of the training program is to ensure that learners have the necessary background knowledge and skills. This may involve providing pre-training materials, such as readings or videos, that cover the foundational concepts related to the training topic. Additionally, it is important to assess learners' prior knowledge to identify any gaps that may need to be addressed during the training.

To make training more engaging and effective, it is also important to use a variety of instructional methods. This can include interactive activities such as group discussions, case studies, or role-playing exercises. Providing opportunities for learners to apply what they have learned in a practical setting can help reinforce the material and improve retention.

Incorporating feedback and reinforcement into training programs is another key strategy for improving effectiveness. Regular opportunities for learners to receive feedback on their progress can help them identify areas where they need to improve and adjust their learning strategies accordingly. Reinforcement, such as rewards for achieving certain milestones, can also motivate learners to engage more fully in the training process.

Finally, ongoing evaluation and improvement of training programs is essential for ensuring their effectiveness. Regular reviews of the training materials and delivery methods can help identify areas for improvement and adjust the training to better meet the needs of learners.