

	7DFWLF	7DFWLF OHWULF	%RDUG OHWULF \$OLJOPPHQMLVLRQV RI 5HVS
\$FDGHPLF ([SHULHQFH			
		LHQWHWURXSF WQBSQV XSSRUW 'RDQHTV DFDGHPLF \$	
,	7DFWLF	7DFWLF OHWULF	%RDUG OHWULF \$OLJOPPHQMLVLRQV RI 5HVS
,			
,			
,			
,			
,	7DFWLF	7DFWLF OHWULF	%RDUG OHWULF \$OLJOPPHQMLVLRQV RI 5HVS
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,	7DFWLF	7DFWLF OHWULF	%RDUG OHWULF \$OLJOPPHQMLVLRQV RI 5HVS
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,			

	7DFWL	7DFWLF OHWULF	%RDUG OHWULF \$OLJOPHQW/VLRQV RI 5HVS
			6WXGHQW ([SHULHQFH
		&UHDWH LQFOXVLYH FR FXUULFXODU H[SHU LQFUUDVH VWXGHQW VDWLVIDFWLRQ DQG V GHFLVLRQV WR SUHSUH OHDGHUV WR ZRUN	
		6WUHQJWKHQ FR FXUULFXODU DQG H[WUD FXUULFXODU RSS FODVVURP	
6(D	7DFWL	7DFWL OHWULF	%RDUG OHWULF \$OLJOPHQW/VLRQV RI 5HVS
	\$VVHVW WKH FXUUHQW LPS LQYROYHPHQW UHVLGHQW DQG OHYHOV RI LQYROYHP DQG 0D1 5 'HYHORS D SODQ DQG VHULHV RI SURJ FR FXUULFXODU FRQQHFW DQG H[WUD FXUULFXODU RIIHULQJV EV VSULQJ	DIFRQ BIRWVWGXQHVVLDQO VXUYHV DIDQGKXQHGG 6SWXQH QW VDWL RR FQH LHS MULB QH YHPHQW HIDQGEQRQH VLGH QSVLDO VV XQHGHM JQH DQG W HDWDXZGUODW ER PISUHOKH MHRV GHYHORS QHZ UDQPUY MARFWRV SGBWMGHGSULQJ FRQWVLGH XWKG WRUGHYHQS SURJUDPV DQDQH DQG VHULHV RI SURJ FR FXUULFXODU FRQQHFW DQG H[WUD FXUULFXODU RIIHULQJV EV VSULQJ	ODDQGKXQHGG 6SWXQH QW VDWL RR FQH LHS MULB QH YHPHQW HIDQGEQRQH VLGH QSVLDO VV XQHGHM JQH DQG W HDWDXZGUODW VWDLVVIDFWLRQ ZLW VWDLVVIDFWLRQ ZLW \$WKOHWLKV ,QV (IIHFWLQHQHVV 6W
		(PSKDVLJH DQG HQKDQFH KHDOWK ZHOOQHV ZHOOQHV 3K\VLFD 6SLULWXDO (PRWLQDO 6RFLDO & ,QWHOHHFWXDO	
6(E	7DFWL	7DFWL OHWULF	%RDUG OHWULF \$OLJOPHQW/VLRQV RI 5HVS
	(QDFW WKH SODQ WKURXJK WR HGXFDWKH 'RDQH FRPPXQLW\ RQ KHDOWK ZHOOQHV LVVXHV DQG HPSRZHU FRPPXQLW\ PHPEHUV WR LQWHJUDWH KHDOWK\ SUDFWLFHV LQ WKHLU OLYHV WKURXJK SK\VLFD +HDOWK 6HUYLFHV VSDFO JUDPV WR \ SU p16SK\Vp (@ € ` € 0@ÀÀS'	RXW WKH \HDU WR HGXFDWKH 'RDQH FRPPXQLW\ RQ KHDOWK ZHOOQHV LVVXHV DQG HPSRZHU FRPPXQLW\ PHPEHUV WR LQWHJUDWH KHDOWK\ SUDFWLFHV LQ WKHLU OLYHV WKURXJK SK\VLFD +HDOWK 6HUYLFHV VSDFO JUDPV WR \ SU p16SK\Vp À ÆRI Xp°WK\ WKP ÆRAFW K€ ÁWR LQ SKX XQLS	
		,QFUUDVH FRKHVLYHQHV IRVWHU VWXGHQWV DFDGHPLF VXFFHV	
,	7DFWL	7DFWL OHWULF	%RDUG OHWULF \$OLJOPHQW/VLRQV RI 5HVS
		'HYHORS RSSRUWXQLWLHV IRU VWXGHQWV WR LGHQWLII \ DQG VWUHQJWKV	
,	7DFWL	7DFWL OHWULF	%RDUG OHWULF \$OLJOPHQW/VLRQV RI 5HVS

	7DFWLF	7DFWLF OHWULF	%RDUG OHWULF \$OLJQPHQW/VLRQV RI 5HVS
			&RPPXQLW\
			&XOWLYDWH D WKULYLQJ 'RDQH FRPPXQLW EHORQJLQJ DQG HQJDJHPHQW IRU H
			,QFUHDVH WKH VXSSRUW IRU RXU GLYHUVH VWXGHQWV VWDI EHFRPHV PRUH UHIOFWLYH RI VRFLHW\± WKURXJK SROLFLHV LQFOXVLRLQ HTXLW\ DQG DFFHVV
,	7DFWLF	7DFWLF OHWULF	%RDUG OHWULF \$OLJQPHQW/VLRQV RI 5HVS
&2 E	6WUHQJWKHQ WKH)RUZDUG &RRPSIOMHG (E\)DOO RI 6WUDWHJ\ 'RDQH\ V\ , VVU\ D\ L\ W\ F\ H\ Q\ D\ P\ H\ Z\ R\ D\ N\ G\ F\ R\ Q\ W\ L\ E\ \ L\ Q\ F\ U\ H\ D\ V\ L\ Q\ J\ W\ K\ H\ Q\ X\ P\ E\ H\ U\ V\ R\ U\ D\ Q\ L\ K\ R\ X\ V\ L\ W\ K\ H\ V\ W\ U\ D\ W\ H\ F\ R\ O\ O\ H\ J\ H\ V\ G\ L\ Y\ L\ V\ L\ Q\ V\ O\ L\ H\ Q\ J\ H\ G\ L\ O\ D\ G\ Y\ D\ Q\ F\ L\ Q\ J\ ' (, R\ X\ W\ F\ R\ P\ H\ V\)< DXGLW\ RI SURJUDPV SXW VVUDWHJLHV WRJHWKHU)< LPSOHPHQW VVUDWHJLHV)< \$QDO\LV RI VVUDWHJ\ LPSDFW	ZQJDKI HRPHQW V\ XUYH\ -RE LQW\ X\ W\ W\ D\ F\ M\ Q\ D\ Q\ H\ X\ S\ S\ R\ U\ W\ J\ E\ P\ I\ S\ G\ R\ D\ M\ H\ G\ H\ R\ Q\ J\ U\ D\ S\ K\ I\ L\ F\ V D\ Q\ D\ O\]\ H\ G	
&2 G	6WUHQJWKHQ WKH FXUUHO\ W\ Q\ J\ H\ V\ H\ G\ H\ D\ W\ L\ S\ D\ O\ R\ D\ D\ W\ Q\ R\ Q\ R\ I\ I\ Q\ H\ D\ L\ U\ P\ H\ I\ H\ G\ W\ V\ M\ B\ X\ S\ V\ -RE VVXGHQW JURXSV DQG H\ [S\ D\ O\ F\ G\ J\ D\ W\ L\ F\ D\ M\ S\ X\ V\ H\ V\ L\ Q\ I\ D\ O\ O\ R\ S\ S\ R\ U\ W\ X\ Q\ L\ W\ L\ H\ V\ I\ R\ U\ Q\ R\ Q\ U\ H\ V\ L\ G\ H\ Q\ W\ L\ D\ O\ VVXGHQWV	6W\ L\ V\ I\ D\ F\ W\ L\ R\ Q\ 6\ X\ S\ S\ R\ U\ W\ T\ X\ U\ R\ R\ H\ W\ Q\ P\ H\ D\ W\ H\ 5\ H\ O\ D\ V 5\ H\ V\ R\ X\ U\ F\ H\ V	
&2 I	,PSOHPHQW SURFHVV IRU S\ R\ C\ P\ I\ S\ O\ D\ H\ O\ G\ H\ S\ L\ E\ N\ F\ S\ Q\ U\ L\ O\ H\ V DQG FRQVROLGDWH VWDQGDUGLJH DQG XSGDWH DOO SROLFLHV DQG SURFHGXUHV	(QJDJPHQWV V\ XUYH\ -RE 6DWLVIDFWLRQ 6XSSRUW T\ X\ U\ R\ R\ H\ W\ Q\ P\ H\ D\ W\ H\ 5\ H\ U\ T\ H\ F\ K\ Q\ R\ O\ R\ J\ \ 6\ H\ U\	
&2 K	6WUHQJWKHQ VVUDWHJLF DQG PXWXDOO EHQHILFLDO 'YWHJLF'YWHJLF'YT@&F`QV 0\ D\ P\ H\ Q\ U\ C\ P\ H\ Q\ L\ Q\ U\ W\ H\ A\ C\ D\ P\ H\ Q\ U\ C\ P\ Q\ D\ 5\ H\ V\ R\ X\ U\ F\ H\ V	&RQWLQXH GLYHUVLW\ LQJ FXUULFXODU DQG FR FXUULFXODU GLYHUVLW\ HTXLW\ DQG LQFOXVLRLQ DYDLODEOH WR XQLYHU FDPSXVHV DQG DPRQJ XQGHUIJUDGXDWH DQG JUDC	
,	7DFWLF	7DFWLF OHWULF	%RDUG OHWULF \$OLJQPHQW/VLRQV RI 5HVS
			(QKDQFH SURIHVVLRLQDO GHYHORSPHQW RSSRUWXQLWLHV
,	7DFWLF	7DFWLF OHWULF	%RDUG OHWULF \$OLJQPHQW/VLRQV RI 5HVS
			&RQWLQXH VVUHQJWKHQ LQJ DQG LQVWLWXWLQDOLJLQ
,	7DFWLF	7DFWLF OHWULF	%RDUG OHWULF \$OLJQPHQW/VLRQV RI 5HVS

	7DFWLF	7DFWLF OHWULF	%RDUG OHWULF \$OLJOPHLOWVLRQV RI 5HVS



	7DFWLF	7DFWLF OHWULF	% RDUG OHWULF \$OLJOPHLOM/VLRQV RI 5HVS
			7HF KQRORJ\ 7UDQVIRUPDWL
		/HYHUDJH WHFKQRORJ\ WR LPSURYH WKH V HPSOR\HH SURGXFYLW\ LQFUHDVH DOXP 'RDQH DV DQ HGXFDWLRQDO OHDGHU	
		&UHDWH DQG LQYHVW LQ DQ DGDSWLYH SODQ IRU WHFKQRORJ DGGUHVW WHFKQLFDO GHEW DQG SRVLWLYHO\ LPSDFV	
,'	7DFWLF	7DFWLF OHWULF	% RDUG OHWULF \$OLJOPHLOM/VLRQV RI 5HVS
77 E	,PSOOPHQW D SKDVHG DSS DQDO\WLFW 6HH) D DQG PZOOPHQW DGDWSDEOH WLQHQWVSDQWV D GDWD ODNH DQG DQDOWLFV YLVXDO WRRO 3KDVH 3URYLGH WUDLQLQJ ZLWK WUDLQ WKH WUDLQHU PRGHOV UHSRUWV DQG GDVKERDUGV	URKDFKHIRUDWDYRHUQDFH 2SKHDMWLOJQODUJLQSQQXDO 7HF KQRORJ DGDWSDEOH WLQHQWVSDQWV PZOOPHQWKR SHUDWLRQ RU FDSLWD 3URYLGH WUDLQLQJ ZLWK WUDLQ WKH WUDLQHU PRGHOV UHSRUWV DQG GDVKERDUGV	7HF KQRORJ\ 6HUV
77 F	\$GGUHVV LGHQWLILHG WHF SRVLWLYHO\ LPSDFW HYRO IXWXUH	KGHQGDPOG VHEW VZBUDFMSQWDFDUJLQ_1(:\$SQQXDO 7HF KQRORJ\ YRLQHQDGLR QDLOV PDLQ JLOV HLQYHQRVFBQGRM VKURXJK RSHUDWLRQ RU FDSLWD WHFKQRORJLV LQ SURGXFYLQ DQG VROXWLRQV PDWFK RU H[FHHGV PHGLDQ RI PRGHUQ FRQYHQWLRQDO DGRSWLRQ UDWEH 6XPPHU RI	7HF KQRORJ\ 6HUV
77 G	3HUIRUP 6WUDWHJLF SVVHV 3ODWIRUP WR GHWHUPLQH WUDLQLQJ QHHGV RQ H[LVW SDWK IRU PRGXOH SODWIRU	VZBQW RISRQGDWDFH JXHJU DQG SHUJDMLE QJWUDUJQDQJ (::\$SQQXDO 7HF KQRORJ\ 3ODWIRUP WR GHWHUPLQH BQWDW HZO XSMHV RVWRBQV WUDLQLQJ QHHGV RQ H[LVW SDWK IRU PRGXOH SODWIRU	7HF KQRORJ\ 6HUVLFHV
77 H	(QJDJH D FRQVXOWDW WR JRYHUQDQFH WR GHWHUPLQH ZKHUH ZDUH JRLQJ	DWD JRYHUQDOFH SODQ ZI JRYHUQDQFH WR GHWHUPLQH ZQDQHFRQH SDQHWD EXLOG [W\HDUDUV	JRYHUQDOFH SODQ ZI JRYHUQDQFH WR GHWHUPLQH ZQDQHFRQH SDQHWD EXLOG [W\HDUDUV
77 J	.PSOOPHQW SURFHVV IRU YHWWHG WKURXJK IDFXOW	WKRORJ\ QHGHQDQFH SODQ ZI IDPSOHPH QDQH SDQHWD LGHDV YHWWHG	\$FDGHPLF \$IIDLUV 6HUVLFHV
77 K	'HYHORS D SODQ UHJDUGLQJ VXPHU RI	'HYHORS D SODQ UHJDUGLQJ GRFXPHQW LPDJLQJ VXPHU RI	7HF KQRORJ\ 6HUV
77 L	'HYHORS D SODQ IRU WKH WHFKQRORJ\ ZLWK WKH ER	WPSKQHPPXVQHRSQDQ E\ VXP R&RPSKQHPPXVQHRSQDQ E\ VXP 'HYHORS SODQ IRU XQLYHUVLW\ E\ \$XXVW	7HF KQRORJ\ 6HUV
77 M	(YDOXDWLW WKH SURV FR 'HILQH ZKDW HQYLURQPHQW PHDQV WR 'RDQH ERWK LQ GHYHORSLSQJ PHWULFV WR XVH RI UHVRXUFHV	QVXUH SULYDF\ DFFHV LQGXWVUL VWDQGDUG UXOHV UHJXODWLRQV DQG LWVWDWLVIDFWLRQ 1HZ 7HF KQLFDO GHEW H[SHQGLWXUH	7HF KQRORJ\ 6HUV
77 N	F\EHUVHFXU DQG LPSOOPHQW SODQ	FRPSOHWH F\EHUVHFXU DQG LPSOOPHQW SODQ FRPSOHWH HDFK \HDU ZLWK SRVLWLYH SROLF\ DQG RSHUDWLRQDO JDLQV WRZDUG FRQYHQWLRQ DQG '5& UHTXLUHPHQWV	7HF KQRORJ\ 6HUV
		(PSKDVLJH SURHVLRQDO GHYHORSPHQW WR LQFUHDVH DZDUH WHFKQRORJ\ VIVWHP ZLGH IRUD GLJLWDQ ILUVW	
,'	7DFWLF	7DFWLF OHWULF	% RDUG OHWULF \$OLJOPHLOM/VLRQV RI 5HVS
		'HYHORS D SODQ IRU LQQRYDWLRQ FHQWHUV WR EH XVHG DV D QHZ RSSRUWXQLWLHV	
,'	7DFWLF	7DFWLF OHWULF	% RDUG OHWULF \$OLJOPHLOM/VLRQV RI 5HVS

